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Table of Contents

Feature Serial Novel:

- ISLANDS OF THE SUN (Part I) . . . Jack Williamson . . . 6
A thought-variant conception of the gaseous origins of the earth. You will find it provoking your thoughts into speculation.

Novel:

- THE BLUE INFINITY . . . John Russell Fearn . . . 70
A powerful presentation of mankind's control over the elemental forces of the universe— He moves the earth!

Novelettes:

- EARTH MINUS . . . Donald Wandrei . . . 40
Another favorite science-fictionist presents a dramatic tragedy of the earth's surface at a strange intrusion.
GREATER GLORIES . . . C. L. Moore . . . 111
Science-fantasy that will hold you breathless in a spell which is broken only when you finish. A thought producer.

Short Stories:

- W62 TO MERCURY . . . Clifton B. Kruse . . . 30
Straight are the paths of the starways—and hard the trail; but men grow in the line of duty into fierce loyalties.
SKY ROCK . . . Frank B. Long, Jr. . . . 59
An island in the sky—a vacuum cupped in light and held throughout long ages, undiscovered!
THE LADY OF THE MOON . . . Philip M. Fisher . . . 105
—and so, because he dreamed of going there, is it unlikely that instead she came for him?

Serial Novel:

- TWELVE EIGHTY-SEVEN . . . John Taine . . . 130
(Conclusion)
Ending an interesting serial novel which will be numbered as one of John Taine's greatest books.

Readers' Department:

- BRASS TACKS (The Open House of Controversy) . . . 152
EDITOR'S PAGE . . . 151

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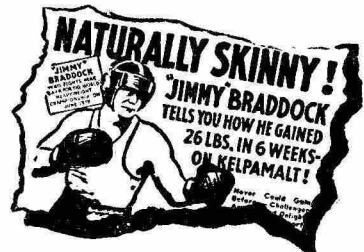
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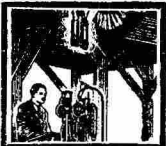
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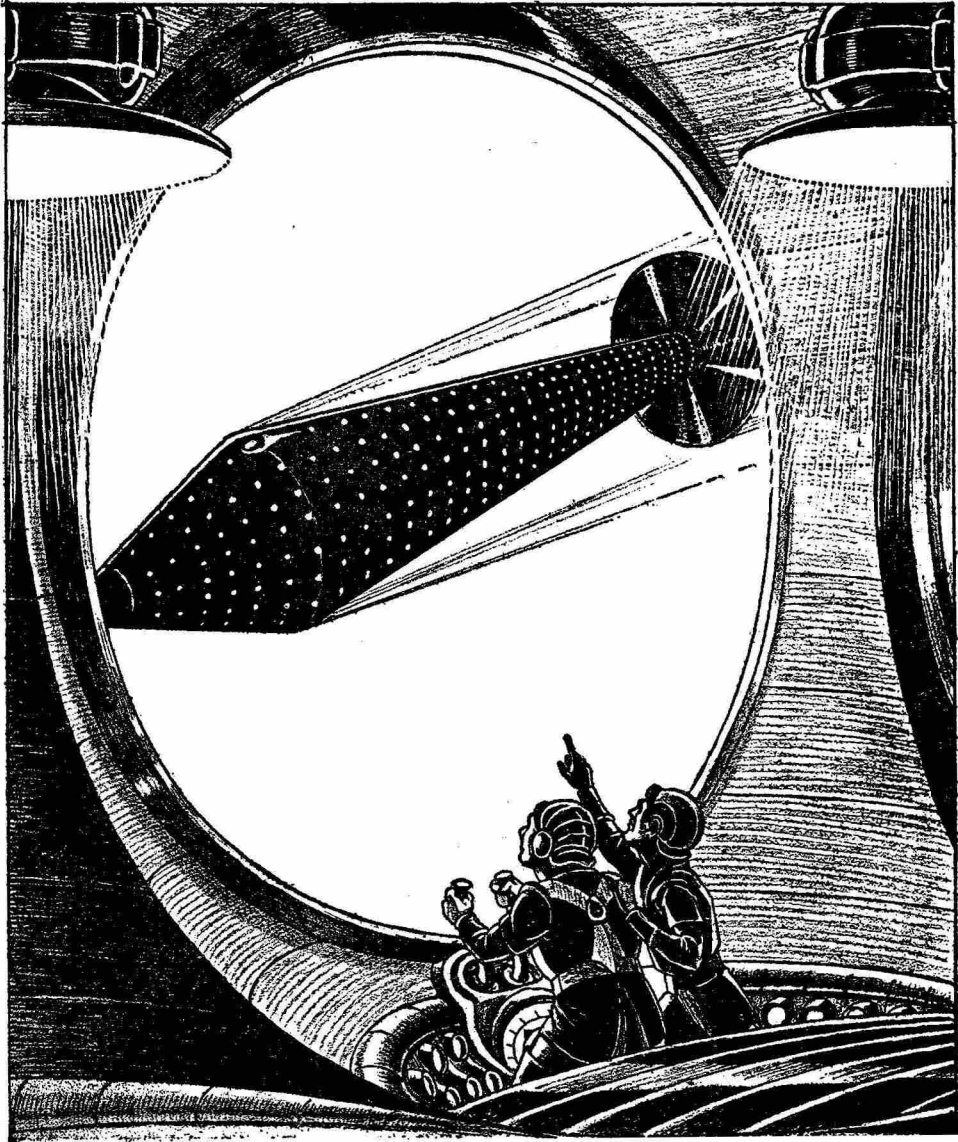


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Islands of the Sun

Part One of a Feature Story

by JACK WILLIAMSON

A Thought-Variant Novel in Two Parts



The signal warning brought every man to his post. On the vision screen appeared the ship of the xyli—a slender arrow of darkness.

IN THE BEGINNING, Ken Daren and Dakkil Kun were young herdsmen upon Pylos, the planet whose orbit is now the third from the Sun. But that time was before the deliverance. Pylos, like her sister planets, then still floated like an island within the fiery sea of the Sun. And like

the others, it was shielded still within the etheric sphere formed eons past, when the cosmic forces of a tidal vortex, deep within the tortured bowels of the Sun, ruptured space itself and extruded the matter of the new-born planet into a subspace beyond.

Until that day, the two young men had been friends.

Pylos was then new to civilized man. Only two generations since, the geodesic fliers had first crossed to Pylos, through the raging, fiery oceans of the solar photosphere. From ancient, far distant Nydron, beyond the perilous belt of Sun-spot storms, the planet where first rose science and culture, the globes brought explorers, conquerors, exploiters. The last planet added to the vast realm of the reigning Lhundar in Kothri, Pylos brought him mines for such precious minerals as the rare crystals of okal, and the broad plantations of the food companies, and such herds as Ken Darren and Dakkil Kun tended upon the remote frontier.

Upon that day, they had left the cattle penned, while they went together to stop the bloodthirsty depredations of a tiger. The new world was then not half explored, her wild life still bold.

Armed with bow and spear, they found the killer's trail. Being simple folk, virtual serfs of the concessionary companies which exported foodstuffs to the mother planet, they possessed no such scientific weapons as neutron-blast projectors. Nevertheless, determined, they followed the wily marauder beneath the changeless, eternal silver light that filtered through the etheric sphere.

Hour after hour it evaded them. It sought to confuse them by doubling across lush meadows and stark, barren outcroppings. Once it crept back into the thickets of a stony ravine. Once it leaped out upon Ken Darren. Its savage claws marked his shoulder. His quick spear stopped it, however, and wounded its foreleg, so that it left thereafter a trail of blood.

They followed it into a canyon thick with ferns.

There they found the weakened, desperate creature had taken refuge in a narrow, hidden cavern, from which

flowed a slender stream. Hastily, the friends prepared a torch. Dakkil Kun held it, while Ken Darren, claiming the right because of his scratch, went ahead and impaled the snarling, springing tiger upon his wooden spear.

The quivering, tawny carcass, he saw, was dead.

"Let's go back," said Dakkil Kun, uneasily. "We're far underground."

"Wait," objected Ken Darren. "We can explore farther, through the crevice yonder."

"I'm as brave as you are, when need be," said Dakkil Kun, anxiously, "but I don't like the feel of a mountain over me. And the tigress may be in there beyond. I'm going out."

But Ken took the torch and squeezed himself, alone, through the crevice. Stooping, he ventured up the narrowing fissure, splashing in the cold runlet of water whose age-long toil had opened the cavern. Creeping at last on hands and knees, he entered a wondrous oval chamber.

His torchlight danced in the milky, prismatic crystals that incrustated roof and walls; it bathed the floor of hard sand, washed immaculately white. The discovery filled him with a curious elation, more intense than the delight of his victory over the great cat.

He waited there a little time, for there was no way to penetrate farther, and he was intoxicated by the age-hidden, scintillant splendor of the crypt.

Dakkil Kun began calling, his apprehensive voice distant and hollow. But Ken Darren was reluctant to go; disappointment and frustration rose oddly before him, at thought of leaving this new-found wonder.

However, regretful, he was at last about to depart from this chamber of elation when his eye caught a purer and more intense gleam of color, where his feet had disturbed the snowy sand.

Eagerly he bent; in a moment he had unearthed splendor beyond his dreams.

The object was a perfect globe, larger than his two fists, and heavy as iron. Its unmarred surface felt cool and curiously soapy to his hands. It revealed a world of limpid transparency. The torchlight kindled within it.

Fascinated, Ken Darren looked into abysmal depths of mysterious purple shadow, wherein pulsed a great heart of prismatic light. Luminous, throbbing streams wove webs of mystic splendor that cradled his mind in transcendent peace. His spirits rose and fell upon tides of colored radiance. He was bathed in a supernal joy which relaxed and soothed all his being.

He knelt, gazing into the crystalline sphere, enraptured with its amazing beauty, until its wonders began to dim with his flickering torch. Then he rose, holding it in hands that trembled with strange emotion.

What he had found, he did not know, save that its liquid, changing beauty gave him a surpassing joy that he had never known. But he knew that it must be precious. He was seized, now, by a quick fear that other men, seeing it, would take his treasure from him.

KEN DARREN had always been a subordinate, little better than a slave of the concessionary companies. He was used to moving his herds at the command of the agents, surrendering most of their fruit at the monorail station in return for his scanty supplies.

Always he had accepted this humble lot as a matter of course. But this great, flaming gem had somehow lighted a spark of independence in him. He knew abruptly that he would fight, die, rather than share its rich beauty with any man.

No, not quite—there was Dakkil Kun. Since boyhood—since the parents of both had been killed in the last

revolt of the dark-skinned, apelike aborigines—they had shared everything: laughter and pain, rude shelter and unvaried food, all the weariness and peril of frontier life.

Dakkil Kun was a strange man, of wild violence and savage discontent. Often he distressed Ken with some unexpected cruelty, some bitter, brooding hate. Dakkil Kun knew the fate, Ken suspected, of one harsh-dealing company agent who had vanished in the hills during the previous season.

Yet they were friends, partners; Dakkil Kun should share this blinding beauty.

His voice came again, a hollow, anxious tumult.

Ken Darren bent to his knees, clutching the jewel and the sputtering torch. Conquering a last impulse to bury the gem again in the white sand, for his own secret, selfish joy, he crept back down the passage.

"You were so long," said Dakkil Kun, unquietly, when Ken Darren had brought the jewel into the thin, silvery light of the eternal day, "I thought perhaps the tigress——"

Then his voice was swept away; he had seen the crystal.

Both men stood there upon the sand, staring one at the other. It was a damp, shadowy place. Thick green of ferns pressed against them, and clear water fell with malicious, tinkling laughter from the blackness of the cave.

They stood of an even height. Both wore rough, leathern garments of their own making; they were armed alike. Each of them was alert and hard, tempered by the privations and perils of existence upon the borders of a new world.

Ken Darren was a slender man, muscularly lean. His eyes were somber, gray and glinting with green. His hair, roughly cut, was a copper-colored thatch

above a thin face, cleanly cut, shadowed with loneliness.

Dakkil Kun was nearly twice as heavy, his swart skin bulging with tapered muscles. His eyes were black and quick and small, beneath heavy, jutting black brows. His hair was thick and very black, with an oily, bluish cast.

Dakkil Kun crouched a little when his quick eyes caught the shimmer of the crystal. Bunched muscles quivered in his massive shoulders and the heavy column of his neck. A sudden, overmastering cupidity, twisting his broad face, made Ken Darren step quickly backward.

"I found this," said Ken. "It is ours, together."

That look of cupidity was whisked away like a mask, so quickly that he could hardly believe that it had ever been. And Dakkil Kun came forward, smiling, betraying emotion only by the twitching of a little muscle, below one ferret eye.

He asked, huskily: "Ken, my friend, do you know what this is you have found?"

"No. Only that it is beautiful."

"I—know," said Dakkil Kun, with such a husky thickness in his voice that he could hardly speak. "An agent, last season, showed me a tiny one that he got from a man who found it in the bed of a stream."

He reached out a thick-fingered, hairy hand, to touch the jewel.

"I know what it is," he whispered. "It is more precious than all Pylos. It is worth more than all the palaces and riches of the Lhundar, our ruler on Nydron. The agent told me."

With his hands still cupping the globe, Ken Darren asked: "What is it?"

"Let me see it," grunted Dakkil Kun, and tore the jewel from him.

Ken Darren found himself gripping

his spear, instinctively. He stopped himself, trembling. Dakkil Kun was his friend, his partner.

"It is ours, together," he said, in a shaken tone. "We have always shared — What is it?"

Dakkil Kun was crouching over the great sphere, locking it in his thick, dark hands, consuming it with his small eyes.

New life had burst into the huge globe when it came into the pale white light and fell unendingly from the entire heavens. Within it, depth opened into new depth of transcendent, pulsing color. Winged shafts of radiance sprang even from the touch of a hand against it.

"What is it?" Ken repeated, and Dakkil Kun raised his small black eyes, with a piercing sharpness in them that Ken had never seen.

"This is a crystal of okal," said Dakkil Kun, his thick voice tense with suppressed emotion. "Okals are a form of carbon, the agent said. Like diamonds—but as different from diamonds as diamonds are from charcoal.

"Okals are heavier than diamonds, and harder, and no one knows how they were formed. Once they were worn for jewels—the richest nobles still give them to their women, in Kothri. But now, the agent told me, the strange radiance of them is used for a key to unlock the atom.

"Okals release the power from plates of copper, to drive the geodesic ships from world to world.

"They are precious. The one the agent had was like a large grain of sand. But it would make him rich, on Nydron, he said. It would buy him a palace in Kothri, and a geodesic flier, and all the luxuries he could want.

"The largest okal ever found, he said, was like the end of a woman's thumb. The Lhundar owns it, and guards it

more carefully than his daughter, Wyndonee. It unlocks the power for the fleet. But the one the agent had was large enough."

WHEN DAKKIL KUN said that, in a voice of sinister complacency, his thick forearm pressed unconsciously against his breast. And Ken knew suddenly, with a cold sickness of dread, that Dakkil Kun had upon him one okal that had belonged to a murdered man.

Dakkil Kun was still crouching, holding the crystal in his hands. Surely, Ken thought, gazing into its transparent, flaming depths, no man could look upon such beauty and think of crime. His black suspicion fled. Softly he whispered: "It is beautiful."

"It is more valuable than anything in any world." Low and cruel was the voice of Dakkil Kun, gloating. "It will buy—anything. The Lhundar's throne. And Wyndonee."

"Give it back to me," said Ken, shocked and troubled. "Let us hide it again in the cavern, where its beauty will be safe. And don't speak so of—Wyndonee."

Dakkil Kun's thick lips curled into a grimace and he clutched the jewel to his side.

"It is half mine," he snarled. "You said so."

"It is ours, together. But let us keep it here. The company police would take it, if they knew. If it is so precious as you say, men would kill for it."

"They would," said Dakkil Kun. At the curious grimness of his dark face, Ken thought again of the secret murder.

"It is beautiful," said Ken, still hoping that his suspicions and fears were unfounded. "Now that I have seen it, I could not live without its beauty near me. Give it back to me, please."

Dakkil Kun's small, dark eyes looked hard at him.

In a heavy voice, twisted and bitter with brooding hate, the big man began to speak.

"All my life I've been nothing but a slave," he muttered. "Since I was half a man's height, I've followed the herds. I've been drenched and frozen in storms, and wounded by wild beasts. I've been lonely and hungry and ragged. I've taken the orders of the agents, and given them all I made, all that has been mine, so that the Lhundar and his nobles in Kothri could feast and wine."

An insane fury was twisting the brutish mask of his face; the small muscle under his eye twitched rapidly.

"Like parasites they have lived upon me. But now it will be changed. This jewel makes me greater than the Lhundar. I can choke out his proud life, and hang his body from his own palace. I can redden Kothri with the blood of his nobles. I can make Wyndonee—until I choose to kill her—my whipped slave to wash my feet."

"No," said Ken, with an unexpected hardness in his voice, "you won't do that. You won't touch Wyndonee."

He tried to soften his tone, persuasively.

"You are mad, Dakkil, to say such things. We saw the Lhundar, with Wyndonee, upon the visigraph screen; we heard them speak. There was no cruelty in them. The Lhundar is a harmless, well-meaning man. Wrong there may be, but the system is to blame, not our ruler and his daughter.

"Look into the crystal. Doesn't the beauty of it make you sorry for what you said? Let us take it back into the cavern."

Dakkil Kun looked up; a calculating glitter was in his small eyes.

"We own the okal together," he said, in a cold, grim voice. "Yet we can't share it. You wish to keep it here; I wish to carry it to Nydron, to crush the

Lhundar and become great with its power. Therefore, it must belong to one or the other of us, alone."

Ken tore his eyes from the crystal, looked up in mute, startled protest.

"One must take it, or the other," said Dakkil Kun. "Let chance decide."

Still clutching the okal in one great hand, he reached down and picked up a flat pebble from the sand. He spat upon one side.

"Wet, and the okal is mine," he said. "Dry, and it is yours."

The tossed pebble spun in the pale, silver light, and fell beside the mocking stream. Bending over it, Ken said, with quiet relief:

"Then it is mine."

Then he looked up, to meet the return of his dark suspicions. Dakkil Kun was coming toward him. A mirthless smile was frozen across his thick lips. His small eyes were cold with a terrible frosty darkness.

Yet his rasped words were reassuring. "By the winged xyli in their worlds of flame," he said, "you won. Take the okal."

Ken read the treachery behind those bluff words in time to duck. He reached for his spear to defend himself. But a shocked incredulity stayed his hand. For the merest instant, the old, stubborn loyalty, which already had endured and forgiven so much, refused to let him strike.

The crystal in Dakkil Kun's great hand, in that vital instant, cut his cheek to the bone. Blind with pain, he staggered forward, thrusting with the spear. A second, merciless blow exploded below his ear.

He spun into darkness.

Ken Darren's face was stiff with dried blood when he woke. His head was reverberating with pain. He moved, and found his cruelly bruised body lying still within the ferns below

the cavern, half washed in the little stream.

He tried with an aching throat to call out the name of his boyhood friend. But only silence answered.

And the jewel of okal was gone.

II.

THE OKAL had struck flame to Ken Darren's heart.

Never, he knew, had he really lived until that burning moment when its strange radiance had warmed and lifted him. The loss of its transcendent beauty extinguished the light of his world and embittered the cup of his life.

Yet the jewel had awakened a power in him, stirred a dormant audacity. But for that communion with its living beauty, he might have lived out his days in the hills of Pylos, and the planets might have floated on within the solar photosphere, to be consumed again in flame with the inevitable secular weakening and collapse of their shielding etheric spheres.

Wyndonee came back to him as he woke, as he had seen her upon the visigraph screen at the monorail station.

On the screen, Wyndonee had stood demurely beside her father, the Lhundar. For all that he was supreme ruler of the human race, upon many planets, he was a scant-bearded, mild-faced, smiling little man, looking far less distinguished than many a herdsman of the hills of Pylos.

But Wyndonee was regal. Beneath a tower of lofty argent, against the vivid background of a hanging tetrace garden, the princess had stood, tall as her father. She was slender, boyish. A vital, gracious beauty filled her like a precious vase. Her dancing eyes, even upon the screen, were rarest blue; her hair was a red-gold flame against the jeweled wealth of a scarlet gown.

When Ken Darren woke, aching and

bruised amid the ferns, the proud loveliness of Wyndonee, and the cool caress of her limpid voice, lived again in his mind. And some barrier of awe had been removed, so that he knew that he loved her.

He wanted her peerless beauty to drink as he had drunk the wonder of the crystal. He wanted the softness of her satin skin beneath his reverent fingers. He desired the dancing light of her eyes in his, and the cool ripple of her laughter at his ear. He wanted the perfume of her red-gold hair richly intoxicating in his nostrils. He wanted to hold her close, her heart quickening in time to his.

And the great crystal might have given him Wyndonee.

That knowledge sickened him with hopeless despair. And back to taunt him came the gloating words of Dakkil Kun:

"The jewel makes me greater than the Lhundar. I can choke out his proud life—I can make Wyndonee—until I choose to kill her—my whipped slave to wash my feet."

Then a hot resolution flamed up in him, from the memory of the crystal, and the memory of Wyndonee, and hardened into invincible purpose.

"I will overtake Dakkil Kun," Ken Darren told himself, "and stop his evil plan. I will take back the okal, which is now twice mine— The okal will make a place for me, in Kothri, peacefully and justly. And then, if I meet Wyndonee——"

Limping from his bruises, he returned to the thatched shelter where he had lived with Dakkil Kun, and found another herdsman turning out the penned cattle.

"No, this herd is mine," the man answered Ken's challenge. "I bought it an hour ago, with the company patents upon these pastures. And cheaply enough."

"From one Dakkil Kun?" demanded Ken, his heart sinking. "Where is he?"

"He has just gone, with his money, toward the monorail station. He is departing upon the next geodesic flier, he said, for far Nydron."

Hardly crediting the completeness of this treachery, Ken said: "He left nothing for his partner?"

"No." The man eyed Ken sharply. "But he told me that his partner, one Ken Darren, was gone mad. He is wandering in the hills, he said, and raving of a great okal. Dakkil Kun will send back the company police, he said, to search for this Ken Darren. Do you know him?"

Thinking swiftly, Ken shook his head.

"No," he said. "The two partners owed me a small debt. I will follow Dakkil Kun, and ask him for it."

He was staggered at the diabolical falseness of his friend, which had been so hard for him to admit.

THERE WAS no doubt now. The betrayal was complete. The concessionary companies, he knew, claimed all such finds as the okal, by laws of their own making. The slightest hint from Dakkil Kun, to the company police, would send him to torture, upon the bare possibility that he had concealed a secret treasure. Men had died on Pylos for lesser crimes than hiding an okal.

Ken Darren hastened down the hill trail. In the valley, beside the new highway, he saw a bulky figure tramping—Dakkil Kun. Sweat of eagerness broke out upon Ken. He ran. If he could overtake him before he reached the police!

But a humming atomotored vehicle slowed to the pedestrian's gestures, swept him out of sight.

With him went all hope for immediate recovery of the okal. Penniless, Ken had to walk. He had to avoid the

company police. Nor could he ask police aid—for that would lose him the jewel.

Twice he slept in the hills, beneath the unchanging silver sky, before he reached the monorail station, where he found that Dakkil Kun had proceeded to the interplanetary port.

Still moved by the stubborn purpose born of the okal's beauty, he set out to follow beneath the shining ribbon of the rail, strung from tower to spidery tower, half across the continent. Bow and spear won his food; he slept under the open sky.

A hundred days had passed—measured by the times he slept—when he came to the port.

The monorails converged upon a high plateau, in a little city of new sheet metal and roughly sawed timber. Near by upreared the titanic, armlike girders of the cradles, to which the geodesic ships descended from the oceans of solar flame.

Dakkil Kun, so Ken's discreet investigation revealed, had long since gone on to Nydron. Without money to pay his passage, Ken hid himself in the cargo holds of a great ship. But the space there was precious; an alert inspector discovered him.

Punishment threatened. But the inspector, a plump, pink-cheeked, efficient little man, Sinl Mran by name, asked a few questions, and became his friend. He gave Ken lodging in his own quarters, and offered him the opportunity to pay his way to Nydron by working on the docks.

Ken's spirit rebelled at such heart-breaking delay. But nothing else offered; he was forced to accept.

For twelve hundred days he toiled to unburden of supplies and machinery the great spheres that came down out of the silver-blue heavens, and sweated to load them with bags of ore and boxes

of fruit and containers of meats and grain.

Laboring, he waited in dread for news of Dakkil Kun, or of the great okal. Of the jewel he had heard nothing. But during the second season there came word of a plot against the Lhundar, and the chief conspirator was named Dakkil Kun.

Dakkil Kun, so ran the report, had been a laborer in the great yards of the Lhundar's geodesic fleet, in Kothri. With the proceeds of the sale of a small okal—the one, Ken knew, for which he had murdered a company agent in the hills of Pylos—he had bought arms, bribed high officials of the yards.

It was a clever, ruthless plot, to seize the fleet, bombard and destroy the ruler in his palace before he knew of danger. And it was nearly successful, failing only because of the desperate courage of a loyal young captain, by name Lar Radnu.

The cabal was crushed. The plotters were sentenced to labor in the mines of small, hot Kardon, the prison planet.

And once, the next season, Ken Darren sat in a crowded theater and watched the visigraph screen for a glimpse of Wyndonee, amid the flaming blooms of her terrace garden. And the regal beauty of her slender, blue-eyed form called out to him like an inspiring voice. He went back to the docks with a renewed determination to recover the great okal, and, somehow, make its radiant splendor light the way to her.

Then, in time, the last day's work was done. He stood waiting eagerly on the docks, hard fingers grasping his toil-won pass to Kothri.

Ken Darren was slender, still, and erect, his every muscle transmuted by labor into resilient steel. Transcendent purpose had sobered his lean face; adamant determination burned in his level, gray eyes.

His laborer's garments had been put

aside. And much of the crudeness of the frontier herdsman had gone with them. Sinl Mran, continuing to be his friend, had opened books to him, had given him the joy of art and the understanding of philosophy and the power of science.

He scanned the argent heavens for the bright speck of the descending ship. And it did not come.

"There has been trouble," said Sinl Mran, who also had procured passage upon the awaited ship. "The flier may never come. We may be cut off from Nydron—forever."

"Trouble?" asked Ken, stunned. "What is it?"

"The thing is half rumor, and incomplete. It is coming in on the tight-beam ultrawave. They are keeping it secret, for fear of panic here. But you should know. There is war."

"War?" Ken was amazed. "War with whom?"

"The xyli, it seems. Aided by this traitor, Dakkil Kun."

KEN DARREN knew of the xyli, the weird, winged creatures native to the flame of the Sun, dwellers within their strange, floating cities in the upper levels of the photosphere. The xyli had ever been among the eldritch wonders of the fiery abyss, but no man had ever had intercourse with them, nor had they ever been a threat to mankind.

"The creatures of flame?" he exclaimed. "But how can they attack humanity? The etheric spheres protect the planets, and the dynamic shells guard the geodesic fliers between worlds."

"So once they did," said Sinl Mran, gloomily. "But this Dakkil Kun has betrayed to the xyli the tensors of the subspace curvature upon which are based the dynamic shells. With those tensors, they possess the keys to all the planets, and to our ships."

"Dakkil Kun," muttered Ken. "How did he get the tensors?"

"He must have seized them, along with other secret formulas, in the late revolt, when he took possession of the yards of the fleet at Kothri."

"But the xyli—the creatures of flame—how could he talk with them to make such a plot?"

"Many seasons past, it seems, escaped criminals established some secret rendezvous in the hot deserts of Kardon. By the use of some ray, they were communicating with the flame beings, who came up outside the etheric sphere of the planet, in their long black ships.

"When Dakkil Kun was sentenced to Kardon," went on Sinl Mran, "he made himself a leader in this criminal gang. And he brought with him the secret tensors, which he must have traded to the creatures of flame for their aid in this new revolt."

"But why," asked Ken, fearfully wondering, "why should the xyli desire these tensors?"

Stout little Sinl Mran hesitated, then replied in a troubled voice:

"There is but one possible reason that we can think of. And that is a terrible one."

"What is it?" Ken demanded. "I can't understand why they should attack us. No man has ever harmed them. No man could ever harm them, in their seas of flames."

"The only possible motive for the attack," said Sinl Mran, "is that they want our planets."

"But our planets would be too cold for beings of flame."

"They are too cold—now," said Sinl Mran. "But these tensors of subspace curvature are keys that will open the etheric sphere about any planet. With them, they can weaken the shielding envelopes and admit the solar heat to turn every world into a ball of flame."

"They can thus make the planets hot, and yet leave them stable, secure from the resistless vortexes of Sun-spot storms and the exploding prominences of flaming hydrogen which forever menace the unprotected flying cities of the xyli.

"That, at any rate," concluded Sinl Mran, hopelessly, "seems their only logical motive."

"Then," whispered Ken, horror-stricken, "if they win, the human race may be destroyed."

"What bargain this traitor Dakkil Kun made with them I don't know," said the little man. "But he has given the life of humanity into their power. We cannot fight against them. We have no weapon that can reach out through the space warp of an etheric sphere. This Dakkil Kun has done the darkest crime a man could do."

"An evil hatred has twisted him," Ken said slowly, "until he is no longer a man. He must be destroyed."

"It may be too late," said Sinl Mran, bitterly. "We may never reach Kothri. And I have a wife there, and a young son whom I have never seen."

A day later, the little town was electrified by the words: "The ship! The *Wanderer*."

DOWN out of the pale, silver bowl of the heavens it drifted, a mammoth, shimmering bubble, its surface absolutely mirrorlike, nowhere broken. It plunged down, slowed, hovered over the waiting metal arms of the cradle.

Then the perfect sphere of the dynamic space shell flickered, was gone. And the massive globe of the hull within, suddenly surrendered to the gravitational pull of the planet, fell heavily into the yielding arms of the cradle.

The three polar elements glowed briefly greenish, faded to dead, black disks. The riveted, massy hull was dully copper-red. It was battered, scored,

pitted, incrustated with dark oxides—scarred from its perilous passage.

The *Wanderer's* officers brought late, disturbing news:

"The Lhundar is hard pressed. The flame creatures have brought the traitor Dakkil Kun and his band of criminals to Nydron—they wore heat-repellent suits, and rode in an insulated compartment in one of the black ships.

"The black ships are raining thermal bombs upon Kothri and all of Nydron. The Lhundar is helpless to protect the planet. He has no weapon that will reach the flame creatures.

"We have received a signal to return at once, to aid in the defense of Kothri if any weapon be discovered. The great scientist, Teddu Len, is working in his laboratory with others. But there seems to be little hope."

Within a day, her cargo unloaded, scanty supplies rushed aboard, the *Wanderer* rose again, inclosed within the shimmering envelope of her dynamic space shell.

Ken Darren, at last, was aboard, with stout little Sinl Mran.

Ever eager for new knowledge, he made Sinl Mran explain the drive of the geodesic flier.

"The tripolar elements," said the little man, "create an intense ultramagnetic field. There is an intense local strain in space, which increases until the field is bounded off into its own sub-space. It is a sort of bubble in space, differing only in small size and artificial origin from the etheric spheres about the planets.

"In effect, the flier is walled off within a curved universe of its own, joined to the larger universe only through the narrow nexus required for necessities of communication and propulsion. For vision, powerful electroscopes amplify the faint light waves filtered through a narrow, unwarped band.

"Propulsion is a matter of varied potentials, utilizing attractions and repulsions against the tremendous cosmic fields of the Sun and other bodies in the outer universe. The full explanation"—and the little man smiled—"involves the theorems of world lines of strain between n -dimensional manifolds co-existing in the hyper-continuum of space time."

"Thank you," said Ken Darren.

Three days the *Wanderer* had been driving toward the solar equator when the warning rang through every corridor:

"A ship of the xyli. Every man to his post."

Ken had no post assigned. He went to Sinl Mran.

"There's really nothing we can do, save drive on toward Nydron," said the little man, gloomily. "The command was merely a matter of form. We have no weapon, no force that can reach out past the space warp of the dynamic shell."

"But they could destroy us?"

"Easily. By use of the subspace tensors of curvature that Dakkil Kun gave them, they can strip off our shell by the interference of heterodyning field frequencies. Thick as it is, the bare metal of our hull could endure the heat for only a few minutes. And without our space shell, we should be helpless to move or to resist the gravitation of the Sun. The ship would plunge straight into the inconceivable furnace of the Sun's core."

"And we can't cut the space shells of the xyli?"

"They have none, need none. They are natives of the photosphere, dwellers in the flame. Their strange, disk-shaped bodies are formed of compounds beyond our chemistry. Their ships and machines are made of refractory alloys, the triumphs of their own weird science, which withstand the heat."

AST-2

"Then we are helpless?"

"Completely. As is the entire human race. But come with me to the vision screens," finished Sinl Mran, dully curious. "We may be able to see the enemy—before we are destroyed."

BESIDE HIM—a company man, Sinl Mran enjoyed special privileges—Ken entered the huge, humming control room at the center of the sphere. They looked up at a vast, circular screen—one of six. As the controls were turned, the screen appeared to vanish, allowing them to gaze into a fathomless abyss of golden flame.

"There!" breathed Sinl Mran, and pointed to a fleck of darkness, an infinite mote, swung free in the xanthic void.

Again he moved the dials. The black fleck plunged toward them, expanding into a slender arrow of darkness. Myriad apertures broke its gleaming ebon sides. At the rear, perhaps concerned with propulsion, was an immense disk, aglow with flickering, hot violet.

"I don't understand it," commented an officer near them. "The ship is merely racing beside us, as if convoying us to Nydron. It has made no hostile move."

"We can't distance it?" asked Sinl Mran.

"No; we are using full power. I believe they could draw ahead if they wished."

Nine days out of Pylos, the planet Nydron appeared like a tremendous silver bubble, suspended in the void of golden flame. The *Wanderer* slipped into its etheric sphere. The black, arrow-shaped vessel, darting through beside her, escorted her down to the vast field at Kothri.

Then despair fell like a black curtain over the ship, replacing the apprehensive uncertainty of the voyage. Ken

met an officer, haggard-faced, walking unsteadily from the control room.

"A message," he muttered, "from the Lhundar's admiral."

Ken followed, watched him post a bulletin, and read:

To the officer in command of the geodesic flier *Wanderer*:

You will land the *Wanderer* in her cradle at the field by Kothri, and surrender her to the officers who will come aboard to take possession of her on behalf of Dakkil Kun, Lhundar of the planets.

Lar Radnu.

As if heavy with the bitterness of defeat, the *Wanderer* sank into her cradle. Ken felt the moment of utter, bewildering lack of weight when the ship's gravity fields were shut off; then the sudden tug as the dynamic space shell was released and the ship dropped beneath the full gravitation of Nydron.

Lar Radnu himself came on board immediately, with a little group of officers. Ken Darren felt an instant and instinctive liking for this young man, whose daring had defeated the first attack of Dakkil Kun, when the yards here were seized.

His young vitality appealed to Ken. His form was boyish and straight, his eyes clear and level. He might have been handsome, but for a livid scar, white and scarlet, that twisted and disfigured half his face, from temple to chin.

In his dark eyes lay brooding sorrow; he was deeply wounded, Ken realized, by the victory of Dakkil Kun.

"The war is lost," he said, in a quiet, shaken voice. "Without weapons, we could not fight an enemy raining thermal bombs upon the planet from beyond the etheric sphere. The late Lhundar met the demands of the enemy, to save the lives of his people.

"He is dead," whispered Lar Radnu, bitterly, "by his own hand. And Dakkil Kun, now Lhundar, has hung his

body from the tower of the palace in Kothri."

His lips were compressed grimly; for a moment he was silent.

"I remain in command of the geodesic fleet," he continued, "at the wish of Dakkil Kun. And I now bring his orders to you."

Lar Radnu paused suddenly, with a hand to his dark forehead. And Ken saw that he was faint with the sickness of grief and pain.

"You will remain aboard the *Wanderer*," he went on, in a low, strained voice. "Under convoy of the xyli, you will proceed in the ship to the prison planet, Kardon. You will remain there, at hard labor in the mines, under the orders of the officers of Dakkil Kun on Kardon.

"I have given you the commands of Dakkil Kun. Any man refusing to accept them may be subjected to a very painful brain operation which will destroy his volition. Will you obey quietly?"

KEN DARREN was stunned. The horrors of the prison planet were notorious throughout the inhabited worlds. Upon Kardon, the oldest of the planets, the secular weakening of the etheric sphere was so far advanced that the progressively increasing leakage of solar radiation had made the planet all but uninhabitable.

Its sky was a blaze of white flame. Its seas had evaporated to deserts of parched salt. Its old continents were barren plateaus, scorched by endless furnace blasts. Even in the comparative coolness of the mines and caverns beneath its surface, men seldom lived longer than a thousand days.

Yet Kardon was a storehouse of precious metals. For generations it had been a practice to send hopeless criminals there, to labor out their tortured days in the mines.

"But why?" exclaimed a horror-stricken officer. "Why send us to the horrors of Kardon? We surrendered at once upon your command."

"The new Lhundar, Dakkil Kun," said Lar Radnu, his voice hushed with pain, "desires to increase the production of minerals upon Kardon. He is sending thousands of men to labor there, among them the nobles and the greatest scientists of Nydron."

A dazed silence had fallen as men were rendered speechless by the dread of their doom to the torrid prison world. But Ken Darren, thinking anxiously of another than himself, stepped forward to ask quickly:

"The Lhundar is dead—what of his daughter, Wyndonee?"

Lar Radnu started; he looked at Ken Darren with an odd, fixed intentness, whispered: "Why do you ask that?"

Stepping close to him, Ken said in a low tone, swiftly: "Once I knew Dakkil Kun. He was a herdsman, then, on Pylos, his mind twisted with an insane hate and a terrible ambition. And he told me there that he was going to degrade and dishonor Wyndonee—and destroy her."

A sudden constriction hurt Ken Darren's throat, as he choked: "And—and—I love Wyndonee."

The scarred young face grew white; the shadows of despair and regret deepened in the eyes of Lar Radnu.

"Wyndonee vanished," he said, in a low and broken voice, "on the day that Dakkil Kun seized Kothri. He has not disclosed her fate."

"Vanished?" rasped Ken, dread clutching at his throat. "Then did he make way with her?"

Bright tears welled swiftly in the dark eyes of Lar Radnu. He turned silently away.

And Ken Darren stood silent, stricken by the realization that Dakkil

Kun had made good his most terrible boast. Wyndonee, whose beauty had brought him here from Pylos, was crushed and gone.

Abruptly he realized that Lar Radnu was speaking again, his low voice composed enough, but dully bitter:

"One thing further Dakkil Kun commanded me to make clear to you: The details of his bargain with the beings of flame. By the terms of their agreement, Dakkil Kun gave the xyli the tensors he had stolen, and they aided him to overcome the Lhundar, and become master of the planets.

"According to their bargain, Dakkil Kun is to rule so long as he lives. And when he is dead, the xyli will take over the planets, turning the heat of the Sun in upon them, and converting them into worlds of flame, for their occupation.

"Dakkil Kun desires these facts published, so that any man who might think of rebellion against him may realize that the same blow which killed Dakkil Kun would also at once destroy the human race."

III.

TWENTY DAYS LATER, Ken Darren was bending with his shovel in a mine shaft, deep in the bowels of hot Kardon. Dim and ghastly, the greenish glow of the disk-shaped photon tube fastened to his forehead revealed the steaming masses of rock that pressed in upon him, suffocatingly.

Sweat glistened in beads upon his nearly nude body, and trickled down him in hot, stinging little runlets. His big, bare chest was heaving; his heated pulse hammered swiftly. But the torture planet had not yet taken the strength out of him.

"Rest, Teddu Len," he muttered to his gasping companion. "You need rest. I'll fill this car alone."

He labored on until the little metal car was heaped with the shattered rock

blasted down from the face of the drift, then touched the lever that sent it trundling down its track, toward the hoist in the central shaft.

"Thank you, Ken," whispered the other man, who had thrown his thin, quivering body down upon the hot rock. Utterly exhausted, he was panting in the sultry air with an alarming, strangling sound.

"Body isn't strong," he gasped. "Old. Weak still from the torture. Yes, torture—because I couldn't send out twenty cars a day. Not used to working—with my body."

"I am," said Ken. He relaxed beside the older man, his huge chest swiftly pumping. "I shall let you rest, more."

"You are kind," said Teddu Len. Bitterly he added: "But even your strength will not last long—a thousand days is a long life, upon Kardon. I shall soon be gone. They turn us out to perish in the flame upon the planet's surface when we can no longer work."

"Just rest to-day," said Ken. "I can finish what we must do." For a little time they rested; when both were breathing more easily, he spoke again: "I believe you are a scientist. Why were you sent here?"

"I am," said Teddu Len. "I was a friend of the Lhundar, and scientific adviser to his government. Dakkil Kun feared to leave me at liberty, lest my knowledge destroy him—that is why I am here."

Upon Ken burst a ray of eager hope. Quickly he demanded: "You could make some weapon?"

"I have invented a weapon," muttered the old scientist, wearily. "I sought to perfect it for the Lhundar, before he surrendered. But I failed. The thermal bombs of the xyli were destroying his people. His kind heart would let him hold out no longer."

"But here in the torture cell, I put my mind upon the problem, to help me

—endure. But for that, I should have died beneath the pain. The idea came to me. Since, I have checked it. It is good."

"Then you could build the weapon?" inquired Ken, eagerly. "In secret? There are thousands of men here," he added swiftly, "loyal to the old Lhundar. If we could revolt, seize a ship in which to reach Nydron, and attack Dakkil Kun——"

Teddu Len was shaking his gray head, weakly.

"No," he sighed. "No, it is hopeless. The weapon would not function without atomic power. And we could release no atomic power without a crystal of okal to unlock it——"

"But suppose we could find an okal?" interrupted Ken. "There are thousands of us, working every day in these pits. Surely it is not impossible——"

The old man's seamed, sweat-grimed face remained a mask of tragic bitterness.

"We might discover an okal," he muttered. "We might turn upon our masters. We might, by some miracle, even reach Nydron and destroy Dakkil Kun. Still, in the end, we could never save the human race."

"From the xyli, you mean?" said Ken. "But——"

Teddu Len hissed a warning from his shriveled lips. The empty car was returning along its narrow tracks. Upon the rear platform stood a grim-faced guard, armed with the thick cylinder of a neutron-blast gun.

"On your feet, slaves!" He cursed them brutally. "Up, by the winged xyli. And sweat for the glory of Dakkil Kun. The compliments of the Lhundar to you, and your daily task is now increased one car each." He laughed malevolently.

"I'm an old man," quavered Teddu Len. "I can do no more."

"Then we have whips for you—and



It plunged down to hover over the waiting arms of the cradle, a mammoth, shimmering bubble, its surface absolutely mirrorlike.

other, more ingenious devices. Unless you are ready to be thrown out on the surface to be roasted alive."

He thrust the end of his gun into the old man's stomach, viciously, sent him staggering against the end of the drift, double with pain.

Ken swung toward him, fists clenching. But the old man, moaning, clung hastily to his arm.

"Stop, Ken," he wailed. "To touch him means torture."

"Precisely!" The guard grinned. Menacing Ken with the thick muzzle of his weapon, he chuckled thickly. "Remember, two more cars, and if they aren't filled, you will both be entertained in the torture cells." Then he left.

TEDDU LEN collapsed on the floor of the tunnel.

"I'll survive this blow," he gasped, as Ken bent over him, anxiously. "But you see—how hopeless is revolt. And even if Dakkil Kun were overthrown, he has doomed humanity."

"But can't we attack the xyli with your weapon?"

The old man coughed, struggled for breath.

"Don't talk now," said Ken. "Just rest, while I fill the car. Then you can tell me."

Tapered muscles cording in his naked body, he raised a heaped shovel of broken ore.

"This is the way of it," said Teddu Len, somewhat recovered, when the car had gone.

"The creatures of flame intend to use the tensors of subspace curvature, which Dakkil Kun betrayed to them, to weaken the etheric spheres about all the planets and flood them with solar heat. Though they may wait until Dakkil Kun is dead, they can do the thing whenever they will. It would be done with interfering field frequencies created by a great ray from their flying cities, and it

could be done so quickly that we could never hope to stop them.

"And," he added grimly, "once the etheric spheres have been weakened, no possible human agency can restore them, to shut out the heat."

Ken Darren was broodingly silent for a time, staring down the narrow metal rails that converged into the darkness beyond the dim greenish light.

"No hope," he muttered at last. "Nothing."

Teddu Len shook his gray head. "No," he whispered. "Once I planned a way. But the plan came to nothing."

Ken's sweat-pearled shoulder came erect. "A plan! What was it?"

"The thing is impossible," said the old man, hopelessly. "It was the great aim of my life. I have worked at it most of the time since my son died—that must have been before you were born, Ken. And I found a way to save the planets from their inevitable doom in the Sun—but it is a way we can never take."

"But tell me," said Ken, breathlessly. "No—wait—here is the car. I must fill it again, first."

When the little car, loaded again, had rolled away down the rails, Teddu Len said:

"Mankind can never be secure upon the planets, so long as they are within the Sun. The creatures of flame live throughout the upper levels of the photosphere. They could never be conquered. Now that they have the tensors, we are at their mercy.

"Even if the xyli had not obtained the tensors of subspace curvature, humanity would soon have been face to face with doom. There is a period upon the life of planets in the Sun. Age by age, the etheric spheres must weaken toward final collapse; there is a slow but increasing leakage of solar heat.

"This scorched cinder of Kardon is but a picture of what every planet must

be in time, even if the xyli had not attacked."

In the dim, greenish light, within that narrow, stifling tunnel, Ken saw a spark of enthusiasm light the old man's eyes, heard in his cracked, weary voice the ring of genius, eternal, invincible.

"But if it were possible, Ken," he said, "to move the planets out of the Sun——"

"But how?" whispered Ken, eagerly. "How could that be done?"

"The Sun—the void of flame between the planets—is, you know, a tremendous ball of hot, gaseous elements. The planets were born deep within it when the structure of space collapsed beneath the inconceivable stresses of tidal vortices; and the matter of each planet was forced out into a subspace of its own, cooled by the sudden expansion, and shielded by the space barrier thus formed from the heat.

"Largely shielded from the gravitational pull of the Sun, these planets have floated upward from the core of the Sun into the upper layers of the photosphere.

"Now, Ken, this is my plan:

"If it were possible to lift them a little farther, and to set them to spinning about the great ball of the Sun at a certain rate, they would never fall back into it. Indeed, once they were past that critical point, the tidal thrust of the rotating Sun, swinging them like stones on strings, would speed them in their new orbits, push them farther and farther away.

"Ken, if we could bring that to be, there could be no more to fear of the Sun's heat. For a time beyond all estimation, our children would be secure upon the planets. Even after the etheric spheres have collapsed and gone, they can live on—for the planets will then be so far out that they can endure the full force of the Sun's radiation.

"Can you picture a day in the future,

Ken, when man will rule an empire of planets, spread proudly out beyond the Sun? A day when perhaps we shall be forgotten, and the scientists will rack their wits to find what force could have detached fragments from the solar mass and dragged them out beyond the critical point? Some tidal attraction, they might suppose——"

The old man checked himself, with a despairing shrug.

"What a fool I am!" he muttered bitterly. "A dreamer, a weakling, a helpless slave. Doomed to die in a few days, and the human race to follow me."

THE LITTLE CAR came gliding back out of darkness. Toiling silently in the dim, green light, Ken filled it, sent it away again.

"Could you," he demanded, "move the planets?"

"With half a lifetime of labor," said Teddu Len, blankly hopeless, "I devised a way to do so. I planned every necessary item of apparatus, every detail of planetary navigation. I even planned the orbital positions outside the Sun. To prevent crowding, some of the smaller planets should be set spinning about larger ones, instead of directly about the Sun."

"How," asked Ken, "would you move them?"

"Within its etheric sphere, a planet might be moved in the same way as our geodesic liners. Three units upon each planet would set up a tripolar ultramagnetic field; the field potentials would react against the cosmic fields of the Sun.

"But it would take power to move the tremendous mass of a planet through the distance to the critical point—more power than man has ever released."

"How," Ken asked, "could we get the power?"

"We can't. All the okals ever found

would not unlock sufficient power for that."

"But an okal"—Ken's whisper was tensely eager—"an okal big enough would do it?"

"It would. You don't know how we generate atomic power? Well, the radiation of a special electron tube is polarized by transmission through a crystal of okal. The transmitted, polarized rays, falling upon a plate of copper, activate it.

"Afterward, when the copper is built into a vacuum cell, the energy of its atoms is liberated as electric current, with release of helium gas, which must be continually exhausted from the cell.

"The okal, itself, is not changed or used up. It merely acts to polarize the rays. But no other crystal, save the okal, which is a rare allotrope of carbon, will transmit the rays. And all the okals ever discovered, Ken, would not energize sufficient copper to lift even a single planet from the Sun."

Ken was trembling violently. His voice was gone. Weakly, he gripped the old man's shoulder.

"How large an okal must you have?" he gasped.

"The largest we possessed on Nydron," said Teddu Len, "was like the end of a woman's thumb. We should require one many times that large—perhaps the size of a man's fist. But why ask? There is no such stone."

Ken was laughing, helplessly, hysterically. He sank weakly to the floor of the hot tunnel, fought to recover himself.

"I found an okal once," he muttered. "It was that large—larger."

Teddu Len, bending over him anxiously, whispered: "Where it is?"

Ken heard the little car humming back along the rails. He tried to smother his bitter, racking laughter.

"Dakkil Kun took it from me," he

gasped. "He carried it with him to Nydron. Now he has all the Lhundar's fleet to guard it, and all the weird hordes of the xyli."

"I knew," the old man sighed, "that there could be no hope."

THE CAR was coming again into the dim, green light, the burly guard once more perched on the platform.

"Up," he snarled, leaping off the car. "You are falling behind." He chuckled thickly. "Are you both ready to be turned out in the desert, to scream for water and die?"

Staggering nervously to reach his shovel, Teddu Len stumbled. His thin, old body lurched against the guard. Hastily the aged scientist recovered his feet, gasped apologies.

"I'm sorry. I stumbled. I didn't intend——"

Angrily, the guard swung upon him, the heavy barrel of his neutron-blast gun lifted like a club.

"Run over me, will you?" he shouted. "By the winged xyli, I'll show you how——"

"Stop!" said Ken Darren, sharply, stepping to the old man's side. "He didn't mean to run into you. He stumbled. He's weak—too weak to be at work. Can't you see——"

"I see what I please," snapped the guard.

"Stand back, Ken," warned Teddu Len, apprehensively. "He'll kill you if you touch him."

Menacing Ken with his weapon, the guard deliberately grated:

"Exactly." Chuckling malevolently, he inquired: "Are you my master, or is the Lhundar Dakkil Kun?"

With a glance of black challenge at Ken, he deliberately lifted the heavy, gleaming barrel, and struck Teddu Len a brutal blow on the side of the head. With a soft, moaning cry, the old

scientist sank to the bottom of the tunnel.

Galvanized, Ken leaped at him.

The thick cylinder of the weapon came up in Ken's face. A tongue of hot, blue flame, the blast of neutrons stung his cheek. Rock splintered and fused behind him.

A blow of his open hand had spoiled the guard's aim, swung the gun aside.

In the dim, green-lighted tunnel, one moment of silence hung static, suspended. Ken Darren stood, tense and breathless, staring at the stolid, leering face of the guard. Teddu Len was a dark, shuddering little heap at his feet.

Then the old man moaned.

"Do you wish to die now?" the guard asked thickly of Ken. "Or later, in the torture cells?"

Kicking the prostrate man cruelly in the sides, he sprang warily back, covering Ken with his weapon.

"Now——"

The word grated unconsciously from Ken's quivering lips. Red mist of rage obscured everything save the ghastly face of the guard. He was aware only of the fierce inner command to destroy that face, to crush and mangle and obliterate the inhuman brute behind it.

He read the cold warning of murder in the guard's slitted eyes as he swept forward to answer that imperative command. He saw the neutron-blast weapon coming up again, as deliberately as if a machine moved it. He saw the finger draw tight on the firing lever.

Then his shovel, fiercely and suddenly swung, caught the weapon and sent it clattering down the narrow rails into greenish darkness.

And the man was in his hands. And his hands had a strength new to them; and they moved to a volition beyond himself. One roaring, scarlet moment—then he was looking down at the still, crumpled body of the guard, and at the dark, dripping stain, where the

man's head had struck the rough face of the drift.

Trembling suddenly, and weak at the knees, he was somehow at the same time aware of a newly opened reservoir of superhuman strength. He saw black danger springing from this inert thing; yet he had no regret.

"He is dead," said Teddu Len, staggering up beside Ken. His thin hands were tenderly nursing a long, bleeding welt across ear and temple. "When they find him it means torture for us—and death."

IV.

FOR KEN DARREN, the incidents of the following space of time had never any solid, connected reality. The coherence of his memory was torn to shreds by terror and wild hope and the pressure of desperate urgency.

Only a series of pictures were left him, each vividly clear, cruelly unforgettable—each madly disjointed from all the rest.

The first was that moment in the shaft, when he and Teddu Len bent over the dead man, and Teddu Len whispered in frantic dread:

"—torture—death."

Ken was sinking in the blackness of the old man's ultimate despair when his eyes caught the gleam of the dead guard's neutron-blast pistol shining out of greenish darkness. His mind fastened upon it with the strength of a new-born, urgent hope.

"His gun is there," Ken found himself saying, and he was himself surprised at the cold, deliberate quietness in his voice. It was a little strange, he thought, that he was not confused like the old man, numbed with terror.

"I shall take his gun," he was saying, "and go down the tunnel. There are thousands here, who hate Dakkil Kun. I shall raise them against the guards."

He caught up the weapon, swiftly tested its mechanism.

"If the guards were overcome," he continued, "and we had possession of the caverns— There might be a ship above that we could take. If we could return to Nydron, reach Dakkil Kun and take the great okal from him—" swiftly, intent over the cylinder. "Once he was my friend. But he destroyed the Princess Wyndonee, and I loved her."

A blue tongue stabbed from the heavy barrel.

"The gun wasn't harmed," he said. "I'm going."

"Wait, Ken."

A fierce, momentary light had come into the eyes of Teddu Len, but it was fading; his bruised head sank forward.

"We can't do that, Ken. We might take the cavern—revolting miners have done that before. But the guards always close the great valves which seal the shafts from above. Always they hold the fortress—the great building on the surface, where the ships come down.

"All the stores of food and water are in that fort; and the air pumps and the conditioning apparatus are there. The guards have only to stop our supplies, protect themselves in the fortress—and wait.

"They have done that before. Hunger and thirst and suffocation have always won the battle for them." He shook his bleeding head. "No, Ken, it is hopeless."

Fiercely, Ken's jaw stiffened. "It could be done," he said.

Swiftly, his mind was racing along old paths. He cast the situation into an old, familiar pattern. Suppose he were back in the wild hills of Pylos and a tiger had trapped him in such a cavern as this—

"Even if some miracle gave us the fortress," Teddu Len was going on,

hopelessly, "it would gain us nothing. The fleet is in the hands of Dakkil Kun. And with the fleet against us, we could never reach Nydron—not even if we captured the single ship that comes to bring supplies to Kardon."

"It could be done," Ken Darren repeated, in a vague, absent tone.

If, he was putting the problem to himself, the guards were the hunting tigers of Pylos—

With a word to Teddu Len, he was running along the dark tunnel.

At the end of the drift, three alert guards were waiting. They were calling into the tunnel, apparently becoming anxious about the man whom Ken had killed. His disk light switched off; Ken crept toward them, silently.

A green finger of light came searching toward him. He crouched against the face of the drift, motionless. He did not breathe until it was gone. Then he ran forward, without a sound—as if he stalked a beast.

He stooped, when he was near enough, and caught up a pebble. He flung it to rattle against the wall of stone beyond the three. They spun away from him, with exclamations of alarm, and he struck from darkness.

THAT INSTANT when his finger pressed the firing lever was forever etched upon the mind of Ken. The bulky outlines of the three guards, black against the green disk light beyond, frozen in attitudes of surprise. His own fierce elation of combat, and a savage ruthlessness of purpose that rode down his shrinking compunction at killing men thus, from darkness.

And the next, blinding instant, it always seemed to Ken, he was storming into a huge, rock-hewn chamber, where a hundred guards had barricaded themselves. At his back were more than a hundred half-naked men, grimed with sweat and blood, armed with

shovels and torn-up rails and captured neutron guns.

The great, rugged vault was blazing with the green rays of suspended, disk-shaped photon tubes. Blue flashes were spurting from the neutron-blast pistols of the guards along their barricades of piled ore sacks and overturned cars.

His own captured weapon was hissing in his hand, spurting blue flame of death. All about him was the dry crackle of the guns and the uncontrolled cries of fighting and dying men, and the deafening clangor of metal against metal, as the miners attacked the barricade with battering-rams of torn-up rails.

A dark bundle came hurtling over the barrier, and down among his men. He saw the bright trail of sparks behind it and realized that it was an explosive bomb. Flinging his body down, he screamed a warning:

"Lie flat! A bomb!"

The scene was gone, with that, into chaotic oblivion.

Hours later must have been his next starkly vivid impression. His aching body was caked with sweat and blood-sodden dust. His shoulder was ripped and blistered where some hot, merciless neutron jet had touched it. A little well of dark blood oozed from his thigh, where a fragment of the bomb had struck.

He was standing in the cavernous space beneath the great valves which communicated with the surface. The valves had clanged remorselessly shut. The disk lights had faded into darkness. The cooled air currents had ceased to blow from the ventilators. The atmosphere about him was already stifling, hardly breathable, reeking with the odors of hot human bodies, sickening with the faint smell of blood.

To Ken it seemed only a moment since he had run down the tunnel with the dead man's weapon. He knew how

long the time had been only because he sagged with exhaustion, because he was faint from hunger, parched with thirst.

"I want water," a wounded man was sobbing near him, huddled in the vast, thick darkness, where shouts and groans continually murmured, and the faint glows of the miners' disk lights danced like luminous green insects. "I want water!" he wailed again and again.

"There is no water," said Ken. "They have shut it off. We shall have no water, no food, no fit air, until we have taken the fortress above."

"Or until we give up our weapons and our leaders, and beg for it," spoke a thick, weary voice out of the gloom. "Men have attacked these valves before. Always they have failed and died. Let us surrender our leaders, I say, so we may have water."

"We are fools to fight," assented another voice. "The advantage is always with the guards. These valves are great walls of armor plate. We could never break through them."

"We need not break them," Ken shouted his appeal. "Listen!"

HIS KNEES buckled under him, and the leaden mists of fatigue came down on him, and he choked in the stifling air. He fought fiercely to control himself and to put down his own despair. He must make these men follow him. To fail now—

"We must take the fortress," he shouted. "And we can. And we can seize the ship that they say is in the cradle there, and the ship will take us to Nydron to fight Dakkil Kun. There is a way."

And his mind was shaping the situation in familiar molds. If this were a hunt on Pylos—

"We need not break the valves," he went on confidently. "We will find another way out of the mines. Somewhere, we will drive a shaft to the sur-

face. Then we can attack the fortress unexpectedly, from outside."

"You are a fool," some voice called out of the darkness. "We can't live outside, under the sky of Kardon."

"That's what the guards think," answered Ken. "They won't expect us, there. But we can live there, long enough— We must!"

And then, as the scene grew dim in his memory, he was asking for some older prisoner, who would know where the passages of the mine came nearest the surface.

Again—and it was the last, wildest memory of that frantic day—he had come up out of the hurriedly driven shaft, into the pitiless day of Kardon.

The ancient planet's barren, eon-flattened landscape shimmered with reverberating heat. Age-riven rocks, naked plains, scorched, utterly lifeless. The sky was a sheet of flame, white, merciless, agony to the eyes. The air was dry, parching; a furnace blast against the skin, a searing blaze within the nostrils.

Nowhere was life, no tiniest plant or minutest insect. No sound, no motion save the delusive shimmer of heat. No liquid water, no merciful cloud. Kardon was dead, dried and baked.

Upon the bare hill above them, rippling and dancing in the heat, stood the fortress. A colossal, looming mass, it spread wide over the hilltop, supporting the wide-reaching arms of the landing cradle.

"The ship is here, sure enough," gasped Ken.

It was the *Wanderer*, which had brought him here. It lay in the cradle, a massive globe of copper-colored alloy, refulgent, burning with the flame of the sky.

"We must take the *Wanderer*," whispered Ken. "It could carry us to Nydron. But if it escapes, it will send back the fleet, and we are doomed."

The heavy walls of the fortress, of

metal and stone, were painted white to reflect the heat. They were many-angled, but featureless. There was no need of doors to let out into the hell upon the planet, nor of windows, to let in its terrific radiation.

"We can never enter that," muttered a despairing voice at Ken's side. It was Sinl Mran, the stout little company inspector from Pylos; he had fought beside Ken from the beginning of the uprising.

"We must," said Ken.

"I have a wife on Nydron and a son I have never seen," the little man gasped in the blinding heat. "I have fought for them. But we can't take that fort. There's no way inside."

His old friend's despair struck Ken like a blow; it sent his spirits plunging toward defeat. Then his weary eyes, squinted against the pitiless radiation, saw a dark grid set in the white walls above.

"There is a way," he said to Sinl Mran.

AND to the bewildered, desperate men clambering from the shaft behind him—a haggard, bloody crew, more than half dead from thirst and foul air and exhaustion, many of them wounded, most of them with no other weapons than shovels and iron rails—he called:

"We shall enter that port, where the air is drawn into the conditioning apparatus."

With puffing little Sinl Mran beside him, the men—the mere hundred or so hardly enough for this desperate venture—straggling along behind, he started up the hill toward those blazing white walls.

For a space again his memory was confused. He was aware only of the tortured, gasping breathing of his men, of the small clatter of their bleeding feet upon blistering rocks. Aware only of

his own weakness and pain, of the blinding, consuming, overwhelming heat that pressed in upon him, until he could see only the white walls, burning mockingly through scarlet mists of pain.

Then, somehow, they had come through the smashed grating, and past the great, frost-rimmed coils of the air-conditioning apparatus. The vibrant throb of the great pumps had covered the sounds they had made. The cool, merciful breath of the fans had put new life in them.

Fixed in his mind was a rough plan of the fortress, sketched from the memories of men who on one chance or another had visited it. Guided by that, he led his haggard little company first to an arsenal. By the time the alarm was fully spread among the unprepared and incredulous garrison, they were fully equipped with new neutron-blast guns.

"We must take the *Wanderer*," he shouted, as his men were handing out the weapons. "All this is nothing unless we take the ship."

Leaving half his men, under Sinl Mran, to pursue the surprised, screaming guards through the corridors of the vast building, to avenge many an old brutality, many a death in the torture

cells, he forced his way upward with the rest.

With more warning, the men in the upper level of the fortress closed a massive metal door in the face of his charge. Desperately, his men attacked it with the cutting electron jets from their pistols, with improvised bars and rams.

Despite their furious efforts, precious minutes had gone when it burst open. Ken led the rush forward beneath the great metal canopy that sheltered the entrance to the flier. Beyond blazed the white, cruel sky.

Gasping with helpless despair, Ken looked upward.

A dwindling silver bubble within its dynamic space shell, the geodesic flier was drifting swiftly upward athwart the flaming bowl of the sky. He drew back wearily, wiping tears of pain from his dazzled eyes.

"The ship is gone," he said hopelessly, rejoining the victorious Sinl Mran, down in the captured fortress.

The little man's ruddy face fell. Dejectedly he muttered: "Then our victory means nothing."

"Nothing," repeated Ken. "We have the fortress, but we can only die in it, of hunger and thirst, or under the bombs of the fleet."

To Be Concluded.

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W62 To Mercury

by Clifton B. Kruse

WITH UNCERTAIN STEPS the paunchy old man weaved his way up the ramp to the plotdeck. His gray beard resembling a tuft of damp, moldy hay and the transport-lieutenant's uniform clinging in baggy folds to the pulpos body, old Mardico sagged against the door.

"It's *twang-twang, twang-twang* for all the creeping rounds of the clock," Mardico bewailed as he slouched into the plotdeck. "I tell you, Prock, 'tis the undoing of a man's soul to ride off into space.

"Silence for a moment, Mardico." Prock, the master engineer, had glanced away but briefly from the hemispherical arc-computer. Then to the pilot at the ship's controls he spoke: "Angle shift 3H, third solar coördination."

Tersely, Wiljon Kar repeated the arc correction as he readjusted the controls. For a moment the space whine ascended to an ear-splitting pitch. Then, the ship driving forward along its new path, the persistent sing-song of the strained beams of the vast transport resumed the monotonous dirge.

"Signal for the grads," ordered Wiljon Kar.

"Grads set to fire," responded Prock. "We should reach Mercury within one hour according to the chart."

Using both hands to throw the ponderous lever into gear, Wiljon Kar eased the power into the ship's twin turbanlike graduating torps. Immediately Prock cut off the firing in the twelve main torps. For a moment the massive transport quavered with this change in vibrations before nestling into its floating drop toward that glittering iron ball which was the planet Mercury.

With the whirling of the grads instead of the steady firing of the flaming torps the deadly monotonous space whine of the ship's beams was ended at last. The cessation was startling.

Wearily Wiljon Kar slouched back in the pilot's seat. Hearing the prolonged sigh just behind him he turned and saw Mardico's bewrinkled face staring in awe at the plottograph just above the controls.

"'Tis like a steel porcupine—or perhaps I should say a veritable flack from Neptune. By the fires of Aldebaran, Wiljon Kar, I like this Mercury not."

"Mardico, you're drunk."

"I swear to less than half a tankard of Martian roulek in the past twenty-four Earth hours." The old fellow's gaze held steadily to Wiljon Kar's piercing black eyes. Vigorously he chewed the mouthful of weechie weed, culminating his gesture of defiance with an accurate spat halfway across the plotdeck.

"Flash marker!" Prock called into the radiophone.

"Zenor reporting," came the response in a heavy voice. "I've sent out the flash-cap for Satania. Hold it, Prock! Here comes the signal. The Mercurian operator has sighted us."

Wiljon Kar was hunched over the landing controls. Variations in the fiery spins of the grads eased the great transport to the left. Now they were dropping to the western twilight strip. From a point midway between the equatorial base and the north magnetic pole a small luminous, green oval could be distinguished. The Earth settlement of Satania was welcoming Special Engineering Transport W62 to the bleak world of Mercury.



Wiljon Kar's commands cracked with militaristic severity: "Mardico, attend with load cushionings. Prepare for landing. And Prock, signal Hals to the observation port."

"W62 ready for landing, sir," came the master engineer's response after a moment.

Like towering stalagmites the jagged mountains of pure iron bristled from the gleaming disk beneath them. Scarcely a thousand miles from Mercury, and

The cloud mass was nearly upon W62. Suddenly the transport shot forward, with first-limit acceleration—

above the western twilight strip the tiny planet showed three well-defined areas. To the right the Sun-baked ranges glared with a brightness which dared to compare with the gigantic mass of the Sun so fearfully near. Then to the right lay that side of Mercury which was forever dark. In between, stretching from pole to pole, was the narrow twilight strip—the only part of the small planet knowing both day and night.

Yet, even as they watched, the rough, inhospitable terrain seemed to rise up swiftly toward them. Now that small luminous oval upon the surface was seen to be a well-defined dome, acres in extent, and supporting it were the smooth granite walls of the Earthman's daring outpost.

Swifter and swifter churned the glowing grads as Wiljon Kar checked the drop until the W62 would settle with scarcely a jar atop the broad landing roof. Then, with a flourish, the grads were silenced and for a moment the utter quiet seemed almost deathly.

Prock's voice choked huskily: "W62 has reached Mercury."

Space travel is ever a dramatic event. A cosmic gesture by that puny toy of illimitable forces—man. Eagerly they crowded into the port exit. From the central tower a slowly distending tube was connected with the W62's outer airlock. Through this tunnel they hastened to enter the vast castlelike outpost of Satania.

"Welcome to Satania."

In the first entrance hall, just beyond the portable entrance tube, a scrawny old man hurried forward. Tears streamed down the emaciated old face and the seemingly fleshless arms reached out as if to grasp all five of these newcomers in a hungry embrace.

"W62, Special Engineering Transport, and crew of five reporting to Commander Cree, Satania upon Mercury."

Wiljon Kar's voice echoed weirdly through the cavernous hall.

Besides Commander Cree, three other Earthmen came forward to greet them. Gaunt men were these, with fringes of hair ranging from gray to white. Though this detachment had served hardly a half of the necessarily prolonged Mercurian contract—twelve years—they were scarcely more than creaking skeletons grotesquely draped with bewrinkled, parchmentlike skin. Martyrs of science and commerce are those who elect to serve upon Mercury. Returning Earthward again they are richly rewarded. But only older men of tried patience are chosen for this severe world of metal. Months of white-hot daylight are succeeded by the bitter cold of the long, dark nights as the rugged metal planet swings fleetly from aphelion to perihelion.

NOT UNTIL the event of the transport's arrival had been fittingly celebrated by a special feast from the ship's stores did Wiljon Kar, Prock and Cree retire to the commander's private office. The three of the Mercurian detachment, with Hals and Zenor, remained at the table as Mardico, loud and jovial, refilled the tankards for yet the third time.

"Your flash was sighted by North Cap observatory, Planet Mars." Prock was speaking as the three seated themselves about the small office room. "We had just reached the Lunarian outpost, Pioneer, on our return from Calisto when the Martian report was relayed to Luna. We were ordered to blast to Mercury instead of returning to Earth."

Commander Cree was hunched over the table, his long, skinny fingers seeming to tie themselves into knots.

"I signaled for a special engineering transport because the regular commercial ship is not due for another six months." Cree's words came sharply, hesitantly.

"Please try to understand my prob-

lem. As you know, this is my second contract here at Satania. This is my world, and I have elected to remain here for so long as I may live. But hear me. It is not the virgin gold nor the hard, sparkling jewels which hold me. To be sure, my life is the bringing from our mines of these hard riches of Mercury. But I know and love this strange, cruel world. I know it as does no other human being."

Cree seemed struggling to say something which he could not bring himself to utter.

Wiljon Kar leaned forward slightly; spoke softly: "Your problem, commander?"

The little old man's eyes flashed keenly. "Wiljon Kar—and you, Prock—you must believe me. Mercury is inhabited! There is life on this planet—life which has developed here—which has finally come to resent man's encroachment."

The little room was tensely silent. Both engineers were regarding the commander steadily. If they believed him to be suffering from some delusion due to his imprisoned existence here they at least made no show of it.

"You will explain," Wiljon Kar pleaded rather than questioned.

The Mercurian commander responded to this reassurance. "We are now swinging from aphelion to perihelion. Six Earth weeks ago, when our day was most brilliant, two of my men and I set out for the Mountain of the Sun observatory base, which is located about two hundred miles due east. It had been my intention to obtain a number of particularly interesting photographs of the great Sun spot, and inasmuch as the base is a small building near the top of our highest mountain, the results are nearly always exceptionally gratifying.

"Well, to be brief, we had reached the Mountain of the Sun and were taking the long, slow climb at a leisurely

gait when suddenly one of the men—Mengo I think it was—cried out that the post was in flames. Of course, nothing there could burn. There is neither free oxygen nor inflammable material upon any of our mountains. Nevertheless, I ran as fast as I could in the bulky space suit, rounded the huge rock and came abreast of Mengo.

"It's incredible, gentlemen. But you will see the evidence for yourselves. Mengo was not blinded by an unusual Solar reflection. For there, scarcely a hundred paces before me, I saw the granite blocks of the post melt and writhe skyward in a flamelike sheet of energy. It was not fire—and yet the tower was being consumed before our eyes."

"Mengo dashed forward," Cree's voice droned on, "hopping from point to point until he had come nearly to the wall of the post itself. Then, suddenly, he backed away. In our ear phones there rang a scream of horror. Instantly Farl was jumping forward to join him—and before my eyes these two became iridescent, the stuff of their bodies seeming to burn into a murky vapor. I—I——"

Cree's voice broke off upon a note of horror. The room shook.

The tremor wracked the massive structure. A sharp, tingling vibration quavered through the bodies of the Earthmen. Wiljon Kar had risen. Cree and Prock sank back in their chairs. For a moment only had the strange shock lasted.

Cree's face twisted with evident fear. "Not an earthquake," he was muttering. "There can be no earthquakes upon Mercury!"

The men about the table in the dining hall had halted their song in the midst of a jovial verse. Now the awed rumble of their voices arose disturbingly.

"What is it, Cree? Tell us what it is," Prock was murmuring.

"Twice before this has happened."

Cree was on his feet, coming around the table beside Wiljon Kar. "And since the destruction of the observatory at the Mountain of the Sun. But come. We must check the walls of the building for cracks. This was more intense, and I fear——"

SUDDENLY the door burst open. Zenor, eyes wide with terror, ran toward Wiljon Kar.

"The transport is gone!" he gasped. "The transport has been stolen!"

"Stace, to the observatory at once!" Cree hurled orders at the awe-stricken huddle of men. "You, Gaulofern. And Vecho. Check the walls at once. Go!"

As the three left the dining hall on a run, Cree hastened back to the office chamber and began with frantic haste to assemble the parts of his space suit.

Wiljon Kar, his tautly lined face suddenly drained of all color, was beside the commander.

"By the eternity of matter, Cree, what is it?"

"If Stace sights the transport we will follow it." Cree spoke excitedly as his old hands trembled awkwardly with the trappings of the suit.

At that moment the man in the observatory called down sharply.

"I see a cloud! One of those bluish bubbles again. Three degrees west of north."

Instantly Prock was scrambling up the short flight of steps.

"We go with you, Cree!" Wiljon Kar had snapped out of his wonderment even as Prock ran up the stairs. "Our space suits are in the first entrance hall."

Cree nodded. "Room for three in the gravity cab. Engineer Prock can remain in charge here."

Wiljon Kar turned to his three men. He was about to select one of them when Mardico jumped forward.

"I'm going for our suits now, sir."

It was a matter of moments until

Cree, Wiljon Kar and Mardico were crowding into the shell of the gravity cab. The airlock chamber opened before them. Like an angry hornet the tiny glass-domed cab spurted from the huge building.

The rocket jet trailed a narrow ribbon of smoke far behind as Cree manipulated both gravity-repellent and rocket levers. He was sighting dead ahead toward that distant cloudlike formation which even now was bounding to a greater altitude.

"Clouds!" old Mardico muttered. "'Tis a veritable rain cloud in a sky which has no air above a planet which has no water."

Fiercely Cree pressed with all his strength upon the gravity-repellent lever. Yet the gleaming iron hills below dropped scarcely at all. As if mocking the pursuing Earthmen, the huge ball bounded its bluish mass higher and higher above the planet.

"Keep them in sight with the telescope," Cree said breathlessly. "We can go no higher. Our only hope is to keep them in sight."

"Them!" old Mardico's eyes popped. "You mean that stinking cloud of mush is alive?" As if to assure himself that he was sober he dug into his pocket for weechie.

Huddled in the seat next to Cree, Wiljon Kar kept his eye upon the telescope. Suddenly his body tensed.

"More power. More power forward. Speed up. They've got the W62—I can see the outline of the ship inside the cloud."

Cree worked nervously with the tiny cab's few controls. Behind them the smoke tail seemed to stretch back with starchlike stiffness. They were driving forward at maximum speed, the single rear rocket jet glowing cherry-red as the stream of fire flowed steadily from it.

"But I see nothing else in the strange mass, Cree." Wiljon Kar's words came

sharply as he leaned forward. "The cloud is clear—liquid-blue. The Mercurians must operate by remote control. There's nothing apparent except the watery stuff around the W62."

Cree's bewrinkled old face was twisted into bulging lines of determination. "I know. The Mercurians are—formless."

A weird moan escaped old Mardico's weehee-dribbling lips as he slunk back in the crowded seat.

"Spirits," he groaned. "We travel to the bowels of hell which is Mercury, only to fight spirits!"

"Cree!" Wiljon Kar cried out. "They're swinging westward—going higher. They're——"

"To the dark side? Are you sure? Can you still sight them clearly?"

As Wiljon Kar swung the pointing telescope, Cree pivoted the fire-belching little gravity cab. Suddenly the blinding brilliance of day became pitch-black night. In the fraction of a second the vastness of the gigantic Sun was snapped off. They were speeding across the dark side of Mercury. Now Cree's groping hands found the switch. Instantly, a narrow beam of light reached its threadlike finger into the thick darkness of the airless night. Across the inky blackness of sky the searchlight sought the fleeing blue-mass cloud.

"There!"

For a second the strange cloudlike ship of the Mercurians showed its blue brilliance in the maw of the searchlight. Then it bounded out of sight. Sweeping swaths of light across the sky the Earthmen found it again. This time Wiljon Kar shot the light. The blue cloud darted—but not so swiftly as Wiljon Kar had moved the light. Cree hovered over his little cab's controls. In the terrible blackness of Mercury's eternal night the rocket exhaust was a fiery line miles in length.

"We're gaining," old Mardico cheered and beat one hamlike fist into the palm

of his hand. "Come on faster. Hold that light, Wiljon Kar. But don't shoot—we might hurt the ship."

The blue cloud checked its speed. For a second it seemed to hover motionless as the Earthmen's cab bore down upon it. Cree was reaching forward to break their mad flight forward when, quickly, the blue cloud bounded up, curving in an arc directly above them.

Cree blasted for a turn. The gravity cab careened at a sharp angle.

Then a fiery stab of pain tingled through the Earthmen. For a second only. And then came darkness and utter silence.

The motor was dead. The searchlight would not function. Weakly Wiljon Kar lay back in the seat. Sweat streamed from every pore, and a strange, unexplainable weariness caused his muscles to throb.

"Cree! Cree! We're falling!"

WILJON KAR was groping about the controls. He squeezed the commander's inert form tightly against the side of the car as he worked to check their drop. The rocket was dead. But one plate of the gravity-repellent would still respond. To throw a full load upon a single repellent plate might burn it out in a single flash. Yet there was nothing else to do. Wiljon Kar threw in the lever. The little cab careened; now spinning slowly as it dropped at a forty-five-degree angle. Wiljon Kar held down the lever. Seconds dragged torturously. He scarcely dared to breathe. How great would be the impact when at last they would strike ground? And where would they be?

The bottom of the cab grated harshly. They were sliding. The smooth hull coasted down the sharp slope of a Mercurian mountain of solid iron.

With a sickening lurch the battered craft toppled end over end to crash abruptly in some dark ravine. Wiljon Kar had clung to the controls, but the other

two had tossed helplessly from one part of the small compartment to the other. Their space suits should prevent any broken bones upon so short a fall. Wiljon Kar clung rigidly to the lifeless gravity bar and sucked hungrily for air.

"Mardico! Cree!" Weakly he called their names. Were they yet alive?

A low mumbling groan answered him. In the utter darkness Wiljon Kar felt about for the others. Mardico was doubled up in a ball-like huddle with Cree's slight form draped over him. Wiljon Kar shook himself to alert consciousness. Save for Mardico's thick breathing, the ear phones were sinisterly silent.

Now he felt over the suits of the other two, switched the heating units to maximum. Then he opened the door, felt of the ground surface cautiously. It was hard, though almost level. He lifted the bodies out, laying them upon the ground. Mardico was fast regaining consciousness, but Cree seemed not to be breathing.

As best he could, with the bulky space suit hampering him, Wiljon Kar worked over Cree, pumped the lungs, concentrated the heat units at various parts of the body according to the simple rules of spaceman's resuscitation.

"Wiljon Kar, by the glory of the triple Sun, the devils have struck. I say, Wiljon Kar, where be we?"

The sound of old Mardico's rumbling jargon warmed his blood. Wiljon Kar could smile—faintly. Spaceman's luck had saved Mardico. But Cree—Wiljon Kar shook his head slowly. Earth had lost a great outpost commander in this brave old man.

Mardico was sitting up. Stiffly his cold hands clutched at the pocket in his space suit.

"I swear, and the Sun fry me if it be not so, that old Mardico's so cold he can hardly stuff a needed pinch of weechie weed—the blessed nerve tonic—through the blasted feed hole in his space cap. Wiljon Kar, I can hear your

face crack as it grins, so cold it is. And where's Commander Cree?"

"Commander Cree—is dead."

"Oh." For a long moment the silence was broken only by the slushing bites which Mardico was making as he took in the cold strands of weechie weed through the feed hole of his space cap.

After a while: "So what's the order, Wiljon Kar?"

Wiljon Kar stood up. His voice was crisp, determined: "Locate the W62."

All about them, frigidly cold and barren, ranged the jagged mountains of iron; although to the eyes of the two Earthmen there was nothing save the impenetrable curtain of darkness. How long he stood there Wiljon Kar did not know. Yet not until old Mardico's soul-quavering shudder aroused him could he think what to do.

"Br-r-r-r." Mardico's teeth clicked like castanets. "Now indeed can it be said that man has looked upon the very materialization of coldness. Colossus! I see cold. With my very eyes I see it."

Abruptly Wiljon Kar whirled about and shook the loquacious old man vigorously.

"By the sacred spirals," Wiljon Kar spoke impatiently. "It could never become cold enough to freeze that flapping tongue of yours. Keep stirring about, Mardico. We'll freeze to death in spite of our heat units if we do not move."

Wiljon Kar was inside the wrecked cab again. Blindly he felt over the motor which lay just beneath the flooring of the single compartment. Now Mardico was beside him. Point to point they checked the various parts of both gravity-repellent and rocket propulsion.

"Dead," Mardico was mumbling. "And burned out. 'Tis as if a bolt of lightning had struck her. Ah, I have it, Wiljon Kar. Electrostatics! What weapon did they use to strike us down? What force drove their drop of hell's water with our own ship in it above this blasted planet? You saw no rocket fire.

You saw no gunfire explosion. 'Twas hoarded electricity, that's what."

Wiljon Kar made no answer. He brushed past old Mardico. Now he bent down, lifted the motionless bundle which was Cree and placed him upon the seat in the cab. Then he removed the space suit from the lifeless body. With the long, bladed knife he slit the main storage plate of the suit's heat unit free from the padding. Placing the small mechanism in Mardico's hands Wiljon Kar began to readjust the dangling wire strands. He could not see, and must work with clawlike extensions upon his gloves rather than with bare hands; nevertheless, those skilled hands were fashioning a simple static-bar meter from the remnants of the space-suit heater.

This completed, he withdrew the leather belt from Cree's useless space suit and fastened one end of this strap to the belt about his own middle. The other end of the strap was snapped to Mardico's belt.

Blindly, moving cautiously, step by step, the two started off in the darkness. Wiljon Kar, in the lead, carried the improvised electrostatic finder before him. He extended the device in first one direction and then another. At a certain point the heat unit plate seemed to respond. It was in that direction that the Earthmen set out. They clambered forward over and around the iron boulders with more daring than caution.

"The wire glows," Mardico chanted as he stumbled forward. "That means the devilish Mercs are near. They must have burned us down almost above their hellish hide-out. Faster, Wiljon Kar, faster. Twice already have I nearly broken my neck with stumbling upon your heels."

PROCK returned to the observatory room at Satania to relieve Zenor.

"No report, Prock." Zenor looked up disconsolately. "I fear they are lost."

Prock nodded. Forty hours had elapsed since the spurting little gravity cab had headed westward into the dark side. Since then no word or faintest signal had been received by the anxious observers back in the outpost.

"Has the Martian post replied to our emergency flashes?"

Zenor shook his head. "See the telescope for yourself, Prock. North Cap observatory is completely obscured by clouds. If they have caught the signal, at least they have not yet sent out a transport."

Mutely Prock peered into the telescope. Then he walked over to the smaller piece and anxiously scanned the barren, Sun-glaring terrain of Mercury. No stir of life was evident.

At last: "Remain at your post, Zenor. I'm going below to try to rest, though I cannot sleep for this ugly fear."

Almost feebly he started down the steps. Then a sharp exclamation from Zenor halted him. Prock turned around and started back into the observatory. Stopped, his muscles paralyzed.

Zenor stood beside the larger telescope. The man was stiff. His flesh seemed to quiver. Now it glowed. Before Prock's astounded eyes Zenor became incandescent. Then vanished.

Prock staggered forward. But Zenor was no longer there. The room was strangely empty. Then he saw that the great telescope itself was gone. A pungent mist hung in the air. Acrid and hinting of seared flesh.

Savage fury throbbed in the engineer's blood. He was at the window. There, floating serenely skyward, was a huge, watery globe. And above it, forming a vast circle around the building, were hundreds more of the mysterious water-blue cloud masses. Prock's hands shook as he grasped the gun at his belt. But aiming at so huge and leisurely retreating a target required no skill. He pressed down the trigger. Through the small porthole a narrow line of fire shot

out to the nearest globe. Shot into and through the strange water-blue cloud.

There was no reaction. The ball neither spurted away nor attempted to retaliate. Prock exhausted the gun of its every unit of energy, still without effect. A faint moan of terror escaped his lips as he dropped the empty gun to the floor. Prock was shaking. Both anger and fear bestirred him.

The sound of running footsteps in the room below aroused him. He opened the door to admit the white-faced man who came running up the steps to the observatory.

Hals braced himself against the wall. Sweat was streaming down his face.

"Gaulofern—went up—in mist. Happened just now. He was in the furnace room seeing about something which had gone wrong with one of the electro-storage tanks. He——"

Prock showed no surprise. Expressionlessly he stared at Hals and then motioned to the window.

"Zenor, too," he mumbled.

Hals dashed to the window. Suddenly a cry broke from his lips.

"Prock, look! Isn't that a transport?"

Prock swung the small telescope into focus. Peered intently. Tensed.

Speeding madly toward Satania, its fire-belching torps glowing, hurled the steel-gray monster, the W62.

"They're using our own ship to destroy us," Prock jabbered as he watched. "But what——"

At that instant brilliant frontal discharge braked the transport's bulletlike forward drive. The W62 was swerving upward. Moving slowly and cautiously now.

But the appearance of the transport had aroused the blue-cloud masses. A strange quivering caused them to reflect the Sun's rays like shimmering waves of water. Then seemingly at a command they flowed together, forming a single

vast mass which seemed to half fill the sky.

With a sudden lunge forward the huge mass hurled itself straight toward the slowly approaching transport. As he watched, Prock's fingers pressed white against the telescope. With this maneuver a new, incredulous hope assailed him. The Mercurians were attacking the Earthmen's transport. But why didn't the W62 blast to safety? Futilely Prock cried out: "Blast—blast free!"

The cloud mass was nearly upon the W62. The transport hovered almost motionless. Then suddenly it shot forward. Shot with first-limit acceleration. The fiery exhaust of its torps stretched back far beyond the horizon. But more than a drive forward had occurred. Prock saw the lightning discharge from its ten arc-finder points. The W62 was emptying her entire reserve of electrical energy in suddenly liberated bolts of pure energy.

The cloud mass staggered. Blindly brilliant flares of vivid energy tore through bluish masses. And even as the transport plunged into the seething ball of fire the terrain below quavered from the sudden rain of lightning bolts from the sky. The shock caused the outpost structure to tremble.

"The transport is still flying." Hals could scarcely raise his voice above a whisper.

Even as the W62 dropped to the landing roof, the whitish streaks of writhing smoke columns—all that remained of the cloud mass—began slowly to drop toward the ground.

THE INNER AIRLOCK clicked open. Eagerly Prock ran forward. First came Mardico, weak-kneed and face chalk-white.

"Prock," old Mardico wheezed. "And did you see us blast them in their own heat? And 'twas I that gave Wiljon Kar the saving hint, though I'm too

modest to admit it myself. But roulek—I'm crackling to a desert dust for want of a tankard of man-saving bit-
ters."

At that instant Hals came on a run from the observatory.

"Flash from North Cap, Mars. They're sending a special transport at once."

But all attention was fixed upon the brass oxygen tank which Wiljon Kar was carrying into the central office room. Carefully he placed it upon the table and stood there regarding it thoughtfully.

"What's in it?" Prock asked.

Mardico laughed. "Nothing—until you open it and out pops a full-grown Merc. But let Wiljon Kar tell it. He knows all the right words."

Wiljon Kar was stroking the tube thoughtfully. "It's simple life—principally iron oxide—in a form quite unknown to planets farther from the Sun, and with a centralized rather than individual intelligence. This is a specimen for the laboratories back on Earth. We'll need to know more about this strange life form. It looks like a mass of gas. And is capable of taking in prodigious amounts of electrical energy and later discharging the same energy.

Those bluish cloud masses were simply hundreds of these strange oxide creatures moving together."

Wiljon Kar cautiously opened the tube. Fingering the jet quickly he forced out a small globule of water-colored stuff on the table. The matter formed into a ball. A shudder of energy came over it and it rose slowly. The Earthmen backed away.

"Watch out, Mardico, it's moving your way."

Mardico backed to the wall. He was chewing frantically. The strange ball floated toward him. Mardico took a deep breath.

Ptew!

A yellow globe of weechie juice struck the blue-cloud ball squarely. There came a snap as the stored energy of the thing was suddenly discharged.

"When the transport from Mars arrives," Wiljon Kar said; "we'll include Mardico's laboratory experiment in the report."

"Right," agreed Prock. "Without their stored-up energy these Mercs are harmless bits of fluffy iron oxide. Perhaps we'd better equip every man with a mouthful of weechie."

Mardico stood there rubbing his forehead perplexedly. "Anyway," he mumbled, "that proves I'm not drunk."

"The Planet of Doubt" by Stanley G. Weinbaum will appear in the October issue of *Astounding Stories*. It is the third of the great series of novelettes presented by one of the most popular new writers of science-fiction. Don't Miss It.



PROLOGUE

Always the cold flame of the eternal stars shone from ahead of them, behind them, and on all sides—if there could be an “ahead” or “behind” in open space. The stars and the clusters of stars, the galaxies and the nebula whitened the dark sweep of infinity. They had been hurtling onward for a long while, but still they were awed by the stupendous parade of suns and systems,

The sky rained birds. The whole sky line was changing and melting as though it had been molded in wax.

by the inconceivable immensity of the universe which stretched endlessly in all directions, by distances so vast that even a unit of measurement was difficult to grasp, and by such millions of millions of celestial bodies that the exact number might never be known.

They seemed to be motionless. Only



EARTH MINUS

A story of cataclysmic forces

by Donald Wandrei

the reading of measurements from strange instruments showed minute changes in the positions of stars and convinced them that they traveled at nearly the velocity of light.

The craft was as strange as the instruments. It was shaped like a huge drum and perfectly transparent when at rest. When in motion, however, a sil-

very substance completely screened it, except for six tiny observation ports, one in the middle of each flat side, and four in the circular band of the rim. The disk hurtled onward headwise, not edgewise, for the head of the disk drum had been screened to be attracted by light, and the reverse had been screened to repel light. Both front screen and

rear screen were composed of many separate screens that could be pivoted or tilted at any angle to steer the ship in any direction.

The envoys were as strange as their conveyance. They, too, were transparent, and of a pale-golden hue like lemon gelatine. They resembled exquisite feathers, tall and terrible. They were alive and possessed the power and knowledge that had enabled them to conquer space. Alien beauty accompanied them and every delicate gesture of the fringes was profoundly instinct with meaning in the obscure patterns of their civilization.

A jellyfish lives upon almost invisible food in the ocean of water. The envoys lived upon almost invisible food adrift in the ocean of space. Their ship was not insulated, because they were impervious to heat and cold. Their ship carried no atmosphere, because neither the presence nor the absence of oxygen was necessary for their existence.

With the whole universe to roam, with giant young stars and old dead worlds and flaming nebulae available for exploration, and with time the most insignificant consideration in their incredibly long lives, they had, nevertheless, chosen to examine first the planets of a small, unimportant, and distant star. That hundredth-rate Sun had nine satellites of trivial size, but one of those planets appeared to foster life of a low and peculiar order.

Because of that planet's spectrum, its water and oxygen and elements, the envoys assumed that any life upon it must be of a bizarre nature. Their mission was simply to observe such life, if it existed.

The strange drum disk shot across the void, four light years wide, which separated that Sun and its planets from the nearest star. The firmament blazed with a radiant and myriad beauty. The envoys never slept. The barbs of their

high, feathery forms quivered incessantly from the ingestion of space food and from wordless conversation.

A planet was expanding ahead of them, a planet of continents and seas, of clouds and cities and fields, a planet full of exciting promise—

I

THE TWO MEN, walking along country lanes, did not seem to find the August afternoon warm enough for them. Their conversation was becoming more heated.

The fields and trees were dusty. The air shimmered with heat waves, and the shadowy places looked hot. Not even a lazy breath of wind came. The chirp of crickets and the hum of insects had a tired note. From the burning blue of the sky, the Sun struck pitilessly upon all things living or inanimate.

The two men were too absorbed with their thoughts to be conscious of the scenery around them. The taller man, Professor Hendrick Hall-Carruthers, had won fame for his pioneer work in physics, especially for his researches in atomic structures. He was sandy-haired, mild in appearance, but confident.

The other man, plump and bald, wearing spectacles on a black ribbon, did most of the protesting. He backed his assertions with the weight of authority. For Herr Doktor Karl von Kurt, European exile, was distinguished for his papers on cosmic radiations and atomic disintegrations.

"Hendrick, you state the impossible." The rotund German spoke slowly, precisely, and without accent.

"But surely you must realize that to the modern scientist, nothing is impossible. We may speak of the improbable, but discoveries are coming so rapidly in all fields that the category of the impossible seems on the way to the discard."

"You twist my meaning," answered the German. "Your theory may be true. If it is true, it must never be tested by experiment. By impossible, I meant that the dangers of the experiment are great. So great are they that the experiment must be considered impossible. It must not be made."

"Nonsense, my dear Karl. Everything is ready and it is going to be made. But getting back to my theory, won't you at least admit that it is possible? According to your view, both matter and energy are basic categories. I say that they are not basic, but only different manifestations of the real basic unit of the cosmos. That unit is primitive or original energy matter, which I call the monotron. It is neither matter nor energy nor life; it is an unstable state about to become matter or energy or life."

Von Kurt doggedly persisted, "You admit that you have not seen such a unit. You have not detected it. No one has seen it or found it in nature."

"True. And why? Because it doesn't exist any more. The universe is building up. The original monotronic unstable state has evolved into energy, matter, stars, worlds, vegetation, seas, human beings. These are stable or comparatively stable states. In order to test my theory, I must take an article from one of these states and tear it to pieces, reduce it by violent destruction so that it loses its acquired properties and becomes again what it originally was."

"I say you must not do that."

"And I say I must and will," the taller man retorted. "In fact, I am so positive about my theory that I don't even consider it mine any longer. It is only my expression in terms of modern science of something which I am certain was known to the Greeks. I have been reading the 'Dialogues of Plato' over again. Do you remember his discussion of beauty? How the disciple

of beauty advances step by step until he sees and understands the final, universal, all-embracing beauty of which all things are part?" That mystical doctrine is, after all, only a more poetic way of expressing the theory. And Lucretius, if I remember correctly, believed in a monistic universe, a cosmic oneness, so to speak, in which all things were inseparably interlinked.

"I believe likewise. I believe that you and I and the ground we walk on, flowers, trees, and rocks, sunshine and fire and all things known to organic and inorganic chemistry, all things known to science, even life and science and thought itself, are but varied expressions or developments of one original, basic, unstable unit."

"You speak against yourself," von Kurt argued. "By your reason, the unstable state had to become something else. It became nebulae, then stars, then planets, then life and vegetation. It could not continue to exist as it was; in its unstable state it was nothing. It developed into something else. The development itself indicates that the unstable state was an unnatural state. If you—how do you say it?—if you undevelop even a grain of sand, you let loose a force you cannot control. You do not know what will happen."

"That's exactly the point," Hall-Carruthers replied instantly. "I do not know what will happen. I wish to find out. It seems to me that the whole spirit of scientific inquiry is to find out. In order to find out, I must experiment."

The German protested. "If you thought that a certain object would blow up a continent, would you explode it in order to test your belief?"

"I don't know," the thin man answered candidly. "If my belief was positive and strong, I would not put it to the test. But if my belief in such a case was tentative and uncertain, I would be inclined to experiment with

the article. However, your illustration, in a way, is the opposite of mine with regard to monotonous. I firmly believe in my theory and I am anxious to put it to test because I am also firmly convinced that there is little risk connected with it. There is some risk in the majority of experiments. Why do you keep harping on dangers? I am no coward. Fear of personal injury would never deter me."

The exiled scientist was silent while they strode up the side of a low hill. At last he replied, "I do not fear for you or for me. I fear what may happen. I do not see how to control such an experiment. I do not see how it will add to knowledge. I see how it may cause great harm but no good."

"How?"

"First, tell me what you will do."

"That's easy," said Hall-Carruthers. "You may examine the apparatus all you wish. I think you will learn more in that way and in quicker time than if I talked for hours. Briefly, I will take either an iron filing or a piece of silica—I haven't quite made up my mind yet. Both are extremely common in nature in one form or another, and they are also present in organic forms. I will place the iron filing or the piece of silica in a special matrix that I have devised."

"Then I will subject it simultaneously to tremendous heat, pressure, and bombardment. The heat will be hotter than the Sun's core—at least 100,000,000° C. The pressure will exceed anything yet known to science—about 1,000,000 tons per square inch. The bombardment will come from an electromagnetic concentration of the omega rays that Quamm discovered some months ago. Under those enormous strains, I expect the iron or silica to be hurled back into its original state. Then—I do not know what."

"You wish to be God! You play with creation! With—how is it said?

—with un-creation!" the German protested.

"Nothing of the sort," came the calm retort. "My dear Karl, your fears carry you away. What I propose to do is analogous to unraveling a rug. And nothing more. Nimble hands once took the raw material, the skein and thread, and wove it into the clear pattern of the rug. The simile is crude but it will serve. In the same way, the hands of cosmic purpose once took the primary threads of energy-matter units and wove them into the pattern of the universe."

"The rug can be unwound, unraveled to its original fiber. I will attempt to unravel a pattern that we term iron or silica so that it reverts to its primary raw material, whatever that was. I have a definite concept of what it was. You have a different concept. The truth may support either of us, or may turn out to be something altogether different. I would like to find support for my theory, but I am more concerned with truth and reality."

"I will make the experiment. If it does not support the theory, or if it denies my theory, I will promptly abandon my theory, and endeavor to formulate a new conception which embodies all the facts discovered."

"Surely you will agree that my method is fair?"

"The method is excellent," his companion admitted. "It brings us to my point, now, and to my objections because of danger that may result."

"First of all, you do not know, you cannot possibly know beforehand what will happen if you reduce matter to the original state that you postulate. I would say that a frightful explosion might occur. There is even a worse danger. Your theory includes the assumption that all facts and things have no independent existence, but are inter-related. Furthermore, both iron and silica are of common occurrence throughout the world. If your meta-

morphosis of a piece of iron succeeds, how do you know that the experiment will end there? Suppose that it progresses until it involves all iron wherever found? Suppose further that it spreads until it involves not only all iron but everything else? It may happen, if, as you assert, all objects and living organisms are interdependent."

"I've already considered the possibility, and discarded it," Hall-Carruthers answered. "My dear Karl, you take the experiment far more seriously than I do. In the first place, you don't believe in my theory. Therefore, my experiment should come to nothing. But if I succeed, I see no more reason to expect a holocaust than I would expect all the paper in the world to burst into spontaneous combustion if I lighted a single piece of paper."

They strolled over the crest of another hill. In the near distance, shimmering slightly through heat haze, rose the roofs of the town, with the stately buildings that housed the university lying off at one side. At the opposite end of town stood the Power Institute of Technology.

The Sun westered and the world was hushed and still. Song of meadowlarks trilled through the quiet of the hot afternoon. Bees hummed over a patch of clover.

The two men remained oblivious of little, familiar things around them. Their minds centered on a problem. One defended himself from the other's attacks, and their discussion continued as firmly as before when they entered the town.

II

AN HOUR LATER, Herr Doktor Karl von Kurt watched with intense interest while his American colleague started the complicated mechanism which controlled the vast energies that were to do astonishing things to a one-inch cube of steel. Hall-Carruthers had

tossed a coin to select the article for him.

"Iron is probably the best choice after all," he declared as he pocketed the coin. "It is undoubtedly of more common occurrence than silica."

He placed the cube in its special matrix, and without further word switched on the current of the powerful electric furnace.

"Better use these," he warned von Kurt, and handed him a pair of smoked goggles.

His guest refused the glasses and watched the cube through the observation hole, until it passed from the red and began to emit a fierce and intolerable white glare. At this point, Hall-Carruthers closed a contact and the matrix folded over the cube.

"Interesting to speculate about what's happening to the cube," the American commented some minutes later. "Too bad we can't watch. The temperature is up to 40,000° C. now. The cube's probably passed from a liquid to an incandescent volatile or gaseous state. If it weren't for the matrix that artificially binds it, the cube would probably have dissipated throughout the core of the furnace. Hope the matrix holds up. It may go to pieces under the heat. In that case, the experiment will be a mess."

The dynamos whirled as he steadily increased the power and the resistance in the field, while the temperature of the mass soared swiftly toward a terrific, unimaginable fury in the hundreds of thousands. But the queerly crystalline matrix held, though it turned in color from a dusty-white to an unpleasant brownish-black.

"This preliminary step had to be made independently of the other two," Hall-Carruthers volunteered. "I tried for weeks but I couldn't figure out any method of simultaneously developing high temperature, high pressure, and concentrated bombardment with

Quamm's rays. This compromise ought to work out nicely. When the temperature I want is reached, the matrix will be automatically shunted over to the compressor, where it will also be bombarded by the rays. The lapsed time will be only a matter of seconds, not enough for any considerable loss of heat. For all practical purposes, I will have the three forces in play simultaneously."

"I can admire your audacity while I disapprove of your purpose," observed the German.

Another half hour slipped by before Hall-Carruthers played upon a bank of controls as if they were a sensitive musical instrument. The matrix slid out of the electric furnace, through a rear door that opened suddenly. It moved into position, as if with a life of its own, in the place allotted to it amid the compressor. At the same time, a new hum disturbed the air, an angry crackling buzz, and the tip of a cone facing the matrix in the compressor glowed with violent violet light that pulsed immediately toward the red and paled into the invisible spectrum.

"Watch, if you want a glimpse of the Sun's interior," the lank physicist announced. "I shouldn't do this, but with precise timing——" He left the thought unfinished.

Both men wore the goggles now. The matrix was solidly inclosed on five of its six sides. A piston hung ready to plunge into position on the sixth side. Hall-Carruthers moved a slide contact and the matrix ground under pressure. The matrix cracked on its exposed side and the instant that the fracture appeared, his hand moved and the piston plunged home.

But in the fractional moment that the fissure was visible, both men jerked their heads away. Even through the heavily smoked goggles, their eyes were tortured. What had once been steel in the matrix was now incredible flame—

a terrible, blinding, raging inferno. No eyes could gaze upon the fearful intensity of that glare of energy that once had been cold metal.

"Sorry—I shouldn't have done that," the American apologized. "Small-boy curiosity, I guess—had to see what was happening."

His hands moved across the controls. The pressure squared, cubed, and the dial pointer swung into its upper register, marking hundreds of thousands of tons per square inch. The core, already vaporized by heat, was now being exposed to enormous pressure and concentrated bombardment.

What new mutations were occurring to the transformed steel could only be guessed at. There was no way of watching what went on in the heart of the monstrous compressor. Matter was being wrenched, split, sundered, pounded, hurled into some alien and abnormal state. Only when the core was opened——

Hall-Carruthers gave a little start. He noticed that his companion had twitched noticeably, but he was for the moment concerned with his own sensations. A strange tingling quivered through him from head to foot. The needle-point prickling was similar to that felt when circulation returns to a cramped limb, or frost-bitten hands, except that now it did not seem to be localized. Spots danced before his eyes. He felt fidgety, nervous, irritable, and curiously warm. He steadied himself, found that he had broken out in a hot sweat. The tingling subsided, but did not wholly disappear.

"Hot in here. Guess I've been working too hard. You feel all right?" he muttered in clipped phrases to von Kurt.

The German was uneasy. He had had the same odd experience. The tingling persisted. His nerves crawled in an unpleasant manner.

Faint spots continued to dance in the American's vision. He shook his head,

frowning. He couldn't afford to delay study of the results of his experiment, or it might be wasted.

He ended the bombardment and reduced pressure.

Both he and his guest forgot their physical discomfort as he prepared to open the core. The heavy piston lifted from the chamber.

They stared through the observation glass, saw the matrix compressed to a liquid.

Of the steel cube, or the vaporized metal, or the flaming incandescence, there was not the slightest trace.

III

"BUT of course," said von Kurt suddenly. "What else to expect? First you converted matter into energy. Then you smashed it with pressure and destroyed it with infra-atomic thunderbolts."

Hall-Carruthers looked downcast. "A material substance can not be turned into a nonexistent nothing. It can not utterly vanish."

"Don't you see? You broke atoms themselves into their components, the neutrons, electrons, positrons, etc. You blasted these into something that hasn't existed for millennia. I am sorry to state that your demonstration was a brilliant success. So successful that you created energy of a new kind, or uncreated matter into energy of an ancient kind, so to speak. It existed in an unstable state. It seeped out through the atomic interstices in the solid metal of the compressor. That was why we felt the stinging sensation."

The tall physicist's air of disappointment remained. "You may be right. This is a twist I had not anticipated. From my standpoint, the experiment will always be a failure, if the new energy always escapes the moment it is produced." He spoke with a tone of personal grievance against the flighty

stuff which refused to stay on hand for study.

"I trust that the experiment will never be repeated. Let the tingling be a prophecy of graver dangers that might ensue," von Kurt replied.

Hall-Carruthers was too disconsolate to argue. "Perhaps I can invent a screen that even a Quammi ray can't pierce," he speculated. He spent some minutes restoring his apparatus to order. The afternoon was gone by the time they left the laboratory and went outside.

"Good heavens!" the physicist exclaimed.

Turbulent and eerie sound filled the air. The fluted song of meadowlarks vied with the harsh chatter of sparrows, the shrill complaint of jays. It seemed as if all the crickets in the world were lustily chirping, and the bees droned and the mosquitoes buzzed as never before. Somewhere a horse was whinnying and whinnying, a nerve-grating sound that screamed out again and again. Cats yowled nastily, but the worst din came from the dogs. Their mournful howls, rising and falling, swelling and sinking through the twilight that hovered over the valley, carried a suggestion of almost human fear.

Fear! That was it! But fear of what? Hall-Carruthers thought of his experiment and felt vaguely guilty. Irritably he shook his head. It was impossible to think with that wild clamor resounding through the air. The whole of animate nature appeared to have gone vocal simultaneously.

Other people noticed the babble—who could help hearing it? he thought wryly—and the curious were coming out to stand on front porches. Not for a minute did the clamor of the insects, birds, and creatures let up. Sometimes it subsided, only to swell louder in a new chorus of complaint. When it seemed that throats must be raw and exhausted, they protested again in more

husky tones. Through the evening and the night, the strange and disturbing uproar continued, jangling the nerves of human beings and arousing vague apprehensions.

Nothing like the wild, weird racket had ever before been heard. And not only in the valley, but in the State, the country, and all over the world, animate nature was making articulate its dumb fear.

Jumpy nerves spread like a contagious disease. Closed windows and doors could not entirely shut out the noise, save in the heart of metropolitan centers where there were no birds and only a few animals kept as pets. The peculiar circumstance arose from the fact that most people complained of jumpy nerves before they became aware of the voices of nature.

More aspirin, bromo-seltzer, headache tablets, and sedatives were taken that night than in the preceding month. If there existed hardy individuals immune to the nerve-fraying disturbance, they found other strange occurrences that upset their self-control.

CHIEF among these was the phantom glow. When first noticed, the phantom glow served as an obvious reason to explain the unease of animals. But what explained the phantom glow? Becoming visible as darkness approached, it grew stronger as the night waned. It showed in the beginning as brief and misty pulses of light that flickered on buildings and along the ground like phosphorescence. In many instances, pin points of luminescence seemed to swim up to the surface of rocks and metals like bubbles rising through a liquid. In other cases, pale flecks of light sank into solid matter. It was a queer illusion that made numerous observers believe their eyes were playing tricks. They believed readily enough, for elusive spots danced in the eyes of very one.

The phantom glow appeared upon streets and pavements and automobiles. It flickered across the fields of drafty airports and pastures and hilltops. It shimmered on houses and crept inside. It flowed across floors and walls, rugs and furnishings. It appeared fluctuantly on pans and dishes, radios and chairs, tables and hearthstones and food-stuffs. It pulsed over clothing, and shone eerily on faces and hands.

It was everywhere, the phantom glow, permeating all things and substances, animate and inanimate. It rose and sank upon hairy coats of animals, slid with equal impartiality from dead matter to living, enveloped trees and rock, water, cities, airplanes, deserts, ships, every one, everything.

Its unreal and ghostly presence waxed stronger as the night wore on, and the phantom glow erased shadows from the dark places and chased shadows into the hearts of men.

Hall-Carruthers did not sleep. Neither did his guest. And neither did they speak. The face of the physicist looked grim as he paced nervously back and forth, listening to the persistent, mournful sounds from the night, watching the fantastic pools of light that glowed around him and upon the countenance of von Kurt. His mind kept reverting to the afternoon's experiment. A reproachful look lay behind von Kurt's eyes.

"Why don't you say it!" Hall-Carruthers snapped bitterly at one point. But von Kurt did not reply.

The sounds and the phantom glow aroused fears; the shootings provided a more serious and real danger. Large cities heard gunfire on almost every corner. Shots rang out in towns and villages, echoed over farmlands. The rapid staccato of explosions could not be mistaken for anything but what it was. Telephone inquiries swamped police headquarters and newspaper offices.

They did not even attempt to explain what had happened.

All the cartridges in the guns and belts of detectives and police had mysteriously exploded. Sporting-goods stores spouted flame and death. Armouries went up in dull concussions. State and government ammunition depots vanished in red holocausts. Munitions factories roared into oblivion with detonations that blasted and devastated great areas. Their own magazines blew warships and men into fiery fragments. Powder, bullets, shells, nitroglycerin, dynamite, torpedoes—everything explosive was set off by some unknown force. There would never again be war on Earth.

Hall-Carruthers and von Kurt heard the explosions all too clearly. The American kept an automatic and a box of cartridges for protection. They burst with a roar that startled his already taut nerves. The bullets peppered the floor ten feet from where he stood. It was a relief to act, to dash upstairs and extinguish the smoldering fire in the bottom drawer of a bureau where he had kept the weapon.

The percussions that burst upon the night air ceased when no explosives remained, but the howling of dogs continued, and the phantom glow pulsed more steadily every hour.

IV

THE S. S. *Princess*, luxury liner in the transatlantic service, raced at full speed toward New York through the morning sunshine. Her master, Captain A. R. Frawlee, stood on the lookout deck, where he had spent most of the night. His stern face looked troubled, and uneasy forebodings filled him.

From a psychological standpoint, it had been one of the hardest nights in his career. The passengers were frightened, panicky. So was the crew. There had been the sudden detonation of the

ship's supply of small arms, followed by fire. Prompt action extinguished the fire, but several members of the crew and two passengers lay dead.

The infernal whimpering and yowling all night long of the pet dogs that several passengers had brought with them did not help matters any. These would have been bad enough, if the strange lights had not kept almost every one awake and called to mind all the sinister superstitions they had ever heard about the sea.

The phosphorescent light had swum up and subsided back into the dark depths. It had flickered across the surface in phantasmal ripples. It had crept onto the ship and along the decks, into the cabins and holds, into the engine rooms and the crew's quarters. The strange light had got into everything. Hysterical passengers babbled of the terrifying experience of turning out the artificial lights, only to find their own hands and bodies glowing with the eerie radiance.

Captain Frawlee was glad that the long night was over. The ship would dock in the late afternoon. Eight fifteen by his watch, and the decks clear. Breakfast in the dining rooms, and comparison of experiences with fellow passengers would help them allay fears.

"So help me, I've never seen anything like it!" muttered the helmsman.

"Haven't you?" Captain Frawlee spoke dryly, the implication being that *he* had. Always before, on the most windless days, and under the hottest Sun, however still the atmosphere, there had always been waves, or at least long, gentle swells from tidal motion. But he and the helmsman looked at a sea literally as smooth as a mirror. It was as motionless as a dead sea on a dead world. Yet a mysterious glow flooded up from its depths, and lightlike bubbles rose without creating a ripple on that level expanse.

The illusion of a breeze was given by

the ship's thirty knots. The water parted around her, but the foaming wake became still again a half mile astern.

"She handles right but she don't feel right," complained the helmsman.

The radio operator continued to send out the same message over and over again, his face intent, worried.

"Anything come through yet?" asked Captain Frawlee.

"No, sir, nothing but static. There's been nothing but static from all stations and all wave lengths since last night. I can't understand it. We've checked every bit of equipment, and everything's in fine shape. But nothing comes through. Our call must have been heard long before now, unless other stations have the same interference. But that's impossible. No matter how bad the static, you can always make out at least a word or two. I just can't understand it."

"Keep trying," the captain ordered.

He frowned as he stared ahead into the wilderness of unnaturally calm water. No wind. No clouds. Visibility the finest in his experience. Mysterious explosions. Moaning dogs. Luminous seas. Weird phosphorescence. Any one of the circumstances might have been dismissed as freakish. Together they constituted a series which must have a bearing on each other but whose meaning he could not make out.

Spots continued to dance in his vision. He told himself it was the result of strain and fatigue from his long, tense vigil. He could not forget that the dancing flecks had come with a tingling sensation that he suddenly experienced the night before. His nerves still quivered. He felt hot, apprehensive. And he had to remain alert. In case the superstitious crew stampeded. Or the passengers got panicky again.

The change came without premonitory warning. It caught him unaware. The sea boiled in a sullen and secret turmoil, yet nothing disturbed the tran-

quillity of its surface. The ocean turned milky, shot with effervescences of light. The ship gave a peculiar shudder.

Captain Frawlee turned a startled glance at the helmsman. The helmsman loomed in his vision, distorted like some object seen dimly and waveringly through heat waves. He saw the helmsman returning his stare with a glance equally puzzled.

The great funnels of the ship tilted grotesquely and subsided toward the decks. The superstructure crept like molasses. Captain Frawlee shook his head violently. No time for hallucinations. A dazed and helpless feeling overcame him. He knew the touch of fear.

The wheel was slipping from the helmsman's hands. The helmsman crumpled on the deck. A ceaseless shudder racked the ship. Men staggered from below and behaved like jelly, convulsively squirming. Screams of terror, wordless, issued from the ship's interior.

Captain Frawlee's mind launched a command, but his lips did not form the words, nor did his voice speak. He was sick with nausea and fever. A trembling as extraordinary as the motion of the ship paralyzed him. His nerves writhed, and he felt torn by invisible surges from within that sundered flesh.

As he collapsed, he wondered when he would recover from delirium. His dying eyes looked upon a scene more hideously distorted than the warped phantoms of the worst nightmare. The bodies of people were slithering on deck like some horrible liquid. The lifeboats dripped from the davits. Smoke funnels, superstructure, decks, people, the whole ship flowed and blended into bubbling stuff.

What was left of the *S. S. Princess* collapsed like a pudding. A thick, dark stain spread in a widening film across the weirdly luminous sea. The agitation and internal boiling of the ocean



Hall-Carruthers gasped as even the shape of his colleague grew blurred in the changing and swimming outlines of the room.

continued. The water crept into the film, and the film infused the water. No trace, no identity, no atom remained to indicate that there had ever existed such a ship as the *S. S. Princess*, or cargo, or passengers, or crew.

V

IN THE PALE LIGHT of dawn which had begun to overlay the phantom glow, Hall-Carruthers, his face tired and worried, stared at Herr Doktor Karl von Kurt. The German had a benign expression on his rather roundish features. He had talked of complex mathematical theorems and abstrusities of physics, of little-known forces and liberated energies, even of death and cosmic doom, with the philosophy of fatalistic acceptance. Neither man had slept.

"You entertain the opinion, then," Hall-Carruthers asked, "that these phenomena are a result of my experiment? The unrest of animals, the explosion of cartridges, the phosphorescent lights?"

"I do. I would say it even more strongly," von Kurt replied. "You were dangerously successful in your work. You hurled matter backward a billion years to the very birth of creation. There will be other phenomena. Violent, terrible phenomena. If the communications system had not broken down, we should now be learning of those other phenomena. I do not accuse you, my friend. It is better that the mind seek knowledge and die than lie fallow and live."

"But I destroyed only a one-inch cube of steel."

"Pardon, but you did not destroy it. You converted it into what you called monotronic energy, and it escaped. You yourself know that there is enough atomic energy in a single drop of water to drive a ship across the Atlantic. You released infra-atomic energy. I

should hesitate to guess how much was locked up in the cube."

"It escaped! I grant that it escaped! Then how can these phenomena be ascribed to it?"

Von Kurt patiently replied, "It did not escape far enough. It leaked out in all directions. It collided with particles of matter. The escaping energy was captured by the atomic patterns of elements, things, humanity. But the escaping energy was in an unstable state.

"Instead of regulating itself to the stable state of its new captivity, it is exciting those patterns; demoralizing them, preparing the way for further transmutations of matter and energy as we know them into something altogether new. The escaped energy may be likened to the fuse which burns down and detonates the powder. It is burning down now. In the process, it detonated explosives. The end product may be anything from great tremors and volcanic activity to——" He hesitated, and shrugged his shoulders over the unfinished thought.

"I will admit that I was wrong yesterday," the physicist defended himself, "to the extent that my tampering with the steel cube appears to have produced a change in steel and the atoms of iron wherever found. But there is no basis for adopting the extremely pessimistic view that any radical change will occur in all other elements and substances."

Von Kurt shook his head gently. "The phantom lights have spared nothing. They are a phenomenon which has not been recorded hitherto, a phenomenon that has affected everything and every one. You take the view that this is the final end product, that the phenomenon of the lights marks the close of the experiment. I say that the phenomenon is merely the initial phase of greater events yet to come. It is useless to debate the issue. The judgment rests with time."

"I must do something. I must undo

what I have done before it grows worse."

"What?" asked the German simply. "How?"

"I don't know. Perhaps I'll have an idea after some fresh air. Come to the laboratory with me. I want to examine my equipment. It may offer us a suggestion."

On the way over, von Kurt remarked, "I would say resign yourself to whatever happens. The experiment has been launched. I think of no way to recall it or undo it. The incandescent core that was prisoned temporarily in your compressor is now dispersed through and throughout the Earth."

Hall-Carruthers preserved a brooding silence. His mind evidently wrestled with more abstract phases of the experiment, as though he were re-checking calculations, equipment, and process.

In the laboratory, he experienced a sensation of brief and helpless rage against the gigantic apparatus. It had not done what he expected of it; or rather, it had accomplished more. And now, being a lifeless thing, it squatted there with insensate disregard of its master and indifference to the fury which, like Pandora's box of trouble, it had allowed to escape.

The mood passed. He walked toward the compressor. Its outline wavered, he thought, but heat waves would not be shimmering so early in the morning. Flecks and more flecks of light danced in his vision. An unexpected vertigo upset him, and he staggered.

He issued an iron command of will to control his shaken nerves. The proportions of the laboratory somehow looked wrong, as though it had bulged, or settled askew. He glanced around uncertainly. Had its dimensions changed?

Panic, fear, welled up from within him, and from without. He stared at von Kurt, and dreamed that a horrible alteration had commenced. He saw von

Kurt staring back at him with a peculiar, paradoxical expression of calm surprise.

Was he going mad? Or on the verge of wakening from a hideous nightmare? The laboratory swam, the equipment trembled, and von Kurt shook like jelly. Agonized, he took a step toward the compressor—

VI

THE PILOT of the ocean clipper *Eagle* let his thoughts wander as the giant cruiser winged westward. Altitude, 10,000; visibility, 100 miles; humidity, traces; cloudless sky; wind, zero; plane velocity, 250 m.p.h. Add static: terrible. Radio operator hadn't been able to contact ship, shore, or anything since they left England. The pilot had never before seen such perfect flying weather, except for the radio interference.

They had sighted the *S. S. Princess* an hour ago, in scheduled position, and though radio contact had failed, they felt reassured by the mere sight of her.

They needed reassurance, after the night just passed. Twice, in the early hours of flight, he had been on the verge of turning back: once, when the radio failed, and once when the strange lights came.

He carried a full load of badly frightened passengers. All night long the sea had glowed with phantasmal and luminous specters. The glow had entered the clipper, permeating the interior so completely that the steward's explanation, "Simply a reflection, madam, uncommon display of phosphorescence, nothing to worry about," did not register. The night was haunted; the sea was haunted; doom rode the skyways; and no one slept.

Now the ocean shone in the rays of the rising Sun, like a mirror of murky milk, alien, unnatural. Fortunately, the roar of triple propellers made con-

versation difficult, and the passengers at least had not worked up a group panic. Manhattan and the Jersey coast showed in the distance. Sighting of land had relieved tension as nothing else could have done.

"Locate the trouble?" asked the pilot.

The radio operator shook his head. "Checked everything, both ways. O. K. Unbroken static on all wave lengths. Impossible, but there it is. Jolly old Sun spots must have gone on a rip-roaring bender."

The pilot smiled, nodded assent. The British expert had a manner of speech that amused the American.

His features sobered again when he thought of the night before. There were several curious circumstances that wanted looking into. The newspapers would carry stories—or would they? If static disturbances had been very widespread—if they had extended to cables, wireless, telephone, radiophoto—the papers would only be able to report the fact while lacking explanation and foreign news. Oh, well—the scientists would have an answer ready. If science didn't know the answer, it would find out in a hurry what and why.

Manhattan loomed larger. Its vague sky line separated into individual buildings. The Statue of Liberty expanded from a pin point. Twenty miles to go—less than fifteen minutes at the present speed, actually a half hour, perhaps, allowing for deceleration and circling the field. If the dust did not materially delay them.

Dust? The atmosphere was as pure as he had ever seen it. Yet tiny flecks, so minute as to seem illusory, drifted above the coast. He strained his eyes watching them, while minutes passed and miles raced by.

Five minutes to go—and he realized with idle curiosity that the dots were birds. Then he looked at them with a new and puzzled interest. They were

birds, unquestionably, but in flocks that must have numbered hundreds of thousands. As the *Eagle* sped on, the sky became dark with the countless droves. Their behavior was unusual, and it struck him all at once that they all soared upward, beating their way higher and higher in some obscure frenzy for altitude.

The Britisher gasped. "Look! See them? Millions of birds! Feather-lined trouble ahead! Don't you Americans ever do anything on a small scale?"

Sea fowl and land birds, songsters and birds of prey spiraled skyward side by side, as if with heaven for destination, or open space. Only a naturalist could interpret so vast and mysterious a migration. The pilot wondered what instinct drove them, what ecstasy of height. It looked rather as if the birds had determined to leave the ground for good. The thought, like a seed, germinated and brought queer reflections.

Were the birds frantically trying to escape from Earth?

But of course not. Why would they? It was only their morning flight, and he simply hadn't happened to have noticed it before.

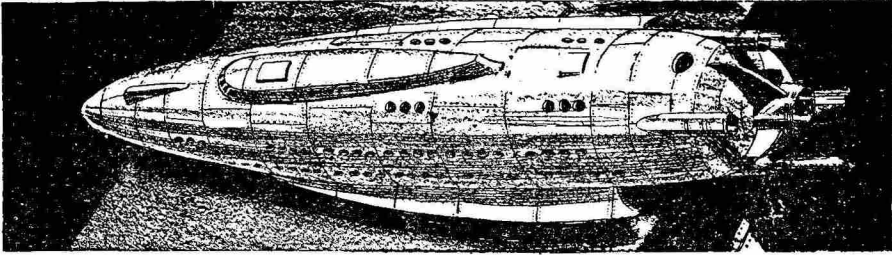
"I say! They're in a bit of a hurry!" exclaimed the radio operator. "What d'you suppose ails the beggars?"

The pilot reduced speed and lost altitude. The vast swarm, concentrated between 4,000 and 12,000 feet, was a serious hazard. The *Eagle* dipped to 2,000 feet and soared across Brooklyn.

"My eye! Look at that!" gasped the radio operator.

The sky rained birds. Smitten by some incredible doom, the small, limp bodies hurtled down in hordes more swiftly than they had mounted. The air was dark with them, and instinctively the pilot sensed a subtle wrongness about the appearance of those bodies. He watched warily, an indefinable chill creeping over him.

The sight must have nauseated him,



for he felt sick. The ship gave a shuddering lurch and dipped. He tried to straighten her but she dived again so that he looked down upon the towers of Manhattan.

That whole sky line was changing and melting and subsiding in monstrous fashion, as though it had been molded of wax!

He stared, incredulous. As in an insane nightmare, brownstone houses sank, skyscrapers tilted, traffic seemed fantastically blurred, and the dots that were human beings moved with slowness like arrested motion. The George Washington Bridge sloughed into the Hudson River, all the bridges and elevateds and superhighways collapsed. The river absorbed the débris, the banks of the river became indistinguishable from the water. The Empire State Building tilted, flooded a block of lesser structures.

The wings of the *Eagle* fell away; the pilot cut the motor. A deep and mournful confusion came to his ears. He saw a city dissolve, but the deafening concussions and crashes that he expected did not arise. Instead, there drifted up a vast and prolonged sloshing thud, like the gradual descent of soft and heavy bodies.

The streets gummed, and stuff like tar poured into the harbor, and the harbor became one with the tar. The fluid changed color, pulsed with whirlpools of dirty light. Buildings and automobiles and bridges, stone and steel, streets and humanity and vegetation, the rock of Earth and the water of the sea, all

ran together in horrible communion, with the identity and pattern of things absorbed in the subsidence of the stuff that had warped them into the crazed distortions of unimaginable doom.

Falling in fragments, its spilled passengers already losing form and deliquescing into substance of no recognizable human attributes, the remains of the clipper ship *Eagle* followed the birds that smacked with dull plops into that pulpy turmoil.

VII

SAN FRANCISCO slept, more fitfully than usual, and with many anxious inhabitants watching the phantom glow; but the crowds that had lined the Presidio and the Great Highway until well after midnight in order to stare at the unearthly phosphorescence of the Pacific had now dispersed, except for a solitary figure.

Poorly dressed, a drifter, he had lingered in the hope of robbing an isolated individual. The chance had not presented itself, but he had stayed on, the strangeness of sea and land appealing to some quirk of his mind. He had thrown himself down in a clump of bushes and grass, but sleep did not come. In the vague darkness of three o'clock, he sat, leaning his head over his knees and looking seaward.

Behind him loomed Telegraph Hill; to his right lay the Golden Gate; southward stood Twin Peaks. The dim and lovely hills of the Coast Range, like brooding forms of eternity, swept away

into the shrouds of night. There was no wind, but sound filled the air. There was no Moon, but luminous ghosts of light lessened the darkness. There was no surf, no crashing of waves, but secret motion inhabited the Pacific.

The sound in the air was the sound of the beating of countless wings, and mournful cries of gulls, and melancholy howls of dogs. In all his rambling experience, the drifter had not previously heard so persistent or so eerie or so universal a complaint. It came to his ears like a dirge, the mute wailing of inarticulate creatures for a grief that they could not explain or allay.

The ghosts of light were the bubbles that rose in the ocean and did not disturb its surface; the misty patches that rippled across the water; the pale phantoms that drifted wraithlike and tantalizing across the ground; the intangible pallor that pulsed upon his own flesh.

He studied them in a half dream and wondered what they meant. The world had not been kind to him, nor life what he wished; his good years were over, and, in the twilight of his time, he faced only increasing poverty. Perhaps the world was old, too; perhaps the ghosts of light were the prophecy of death, and the screaming of gulls a cry before oblivion. It was a queer conceit, but it suited his mood of dream.

He looked across the Pacific, stilled by some unique freak of tide and wind. The clear air partook of the luminous quality of the ocean. The sweep of sky and water blended in the dark, far horizon to an obscure immensity beyond which lay the mystery of things. His half-dreaming, half-waking self drifted toward that distant gulf. There was a riddle there. He did not know the answer. No man knew the answer. But many before him had fallen over cliffs, and many had walked across sands, leaving footprints that went into the sea, but did not return.

He was thinking about the peace and

quiet when vertigo suddenly turned the pit of his stomach and made his senses reel. Sickened, he fell on his back. A hush overcame the world, like the stillness that greets the curtain rising upon a drama.

A wind rose—a great wind—a wild, shrieking wind—and it howled like a hundred hurricanes from the east. He lay flat on his back. The phantom glow raced into mad motion. A bungalow a hundred yards from him skidded off its foundations, slid across ground, and scudded out to sea. He blinked in astonishment at this marvel.

Behind him, San Francisco shook, and now he knew that a great earthquake had begun in conjunction with cyclonic wind. Towers toppled; buildings fell; structures moved. A house went flying at a tangent skyward; then whole rows of houses; then people, and trees, and stones, and cars, and the Golden Gate Bridge.

An acacia bowed westward, its roots lifted with a sough, and it slanted away into the western darkness. The wind shrilled and swelled to thousand-mile-an-hour ferocity, and the glimmering sky became black with flying objects, gliding houses, people and beasts and birds and things, warped in shape and hurtling to some fantastic end. He himself slid to the cliff's edge, and noticed without surprise that the cliff was crumpling into the sea.

Things stirred and were lost, like butter and milk in a cauldron. There was never such an earthquake, and now he knew that delusion must be added to terror. His mind skittered; he felt whirled into the all-embracing conflux. A huge and doleful noise deafened him, a noise of cosmic dimensions and inconceivable origin. His glazing eyes stared eastward, and then he gibbered with fear.

The sky line flowed, and the hills flowed, and the mountains marched down to the sea. They were ghostly

with light, and radiance crowned them, and they absorbed all that lay in their path. The enduring monuments of time had abandoned their immovable vigil. Like the figures of earth, the eternal peaks departed from their allotted substances and abandoned fealty to time and space. The Sierras wooed the Pacific, and ocean uplifted to greet them.

The cliff upon which he lay yielded to immutable necessity. Its union with the now-shining waves was an impalpable interchange. His consciousness, submerged in the colossal upheaval, preceded his body to the oblivion beyond.

VIII

HALL-CARRUTHERS staggered, leaned against the compressor for support. The giddiness that tormented him increased. "Karl!" he gasped. "Is it madness—or—or—reality?" He had difficulty speaking.

Even the shape of his colleague grew blurred in the changing and swimming outlines of the room. The once-solid metal of the machine felt soft and horribly fluid. He saw with a kind of formless terror that his hand and the machine had somehow become interwoven. He no longer recognized the disintegrating features of his friend. Yet he heard, thickly, and as if from afar, in the midst of rapid devolutionary fluxes that were swallowing individual objects in a metamorphosis alien and utterly inexplicable, the words of a faint and indistinct speech.

"Not madness. Reality. The last reality. The end of the experiment. The energy you let loose attacked matter. It liberated the further atomic energy locked up in matter. Now the patterns of things and the separate entities or individualities or identities of things are dissolving.

"A new kind of energy is being cre-

ated. It is different from any other form of energy that I know. What is happening here must be happening everywhere. Soon no person and no single thing will remain. All that will exist will be a sphere of energy, a true oneness that has converted and absorbed all else into its single state. What will then occur, we will never know."

Karl looked as though he wished to say more, but could not. Before his eyes filmed, they expressed an unspoken farewell.

The thoughts in Hall-Carruthers's own dying mind grew hazy. They were a haphazard assortment—memories of human avarice and greed and folly, war, famine, oppression; his success and failures; things he had longed for and dreamed of; fading conceptions of the smallness of man in the immensity of the universe; the brevity of life in the endless oblivions of time; darkness and light, vanishing light and darkness eternal—

EPILOGUE

The pilot of the astroplane swung the gleaming drum disk around the Sun. The rest of the envoys stood behind him, their frondlike figures swaying, their feathery crests vibrating in the enigmatic patterns of their ideational exchange. The long, celestial transit was nearing its end.

Still at a velocity approximating that of light, the astroplane curved beyond the Sun. Deceleration began. The envoys drifted to the rear porthole, and a mood akin to nostalgic loneliness assailed them as they surveyed the brilliance of strange skies and the configurations of unknown stars. The perilous thrill of exploration, which has been the lot of adventurers since the cosmos came into being, held them tense.

The pilot alone concentrated his attention upon the expanding planet, Earth. Millions of miles of space intervened, but within minutes and sec-

onds, they would be hovering above their goal. A planet, silvery with reflected light, grew swiftly larger. Continental land masses and islands outlined by seas became clearly visible. The planet expanded until it blocked off almost everything else in the forward range of vision. Certain distortions, now becoming distinguishable, gave proof that the planet possessed atmosphere. The appearance of various artificial markings offered increasing evidence that the planet possessed life.

The pilot suddenly brought the astroplane to an instant stop. A brief quiver in the translucent barbs had flashed warning to the other envoys. They braced themselves against the impact brought about by the arbitrary and complete cessation of flight.

Intense excitement agitated the pilot. The feathery barbs vibrated. The rest of the envoys drifted over and clustered around the pilot. Each in turn peered through the forward observation lens.

The unknown planet was aglow with light of its own. The islands and the outlines of continents seemed hazy. The peculiar markings lost shape. Some vast and mysterious alteration progressed. It looked as though the land

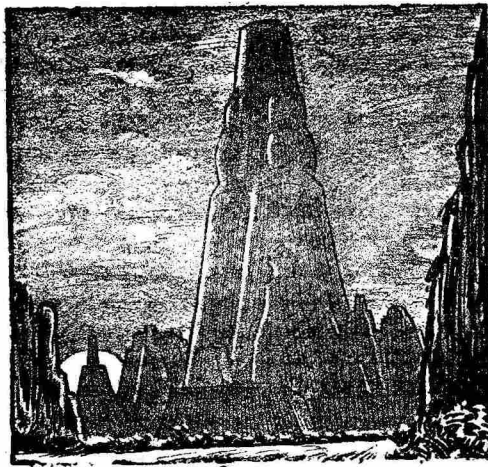
masses were sinking into the seas. Closer scrutiny showed that mountain ranges flowed over surrounding land areas, and that, where land and ocean met, an extraordinary transformation occurred. Liquid and solid were combining. Each had lost its characteristic state and properties. While they watched, in awe and consternation, they witnessed the metamorphosis of a world.

It no longer possessed distinguished objects or physical properties of any kind. There came into being a new state—an unstable state that was neither liquid, nor solid, nor gas, neither matter nor energy, but a condition between. A sphere of luminous, material energy had been born.

Visibly, the sphere of strange new energy began to flatten at the poles, to bulge at the equator.

The envoys watched no longer. They did not wish to be involved in possible destruction through the unpredictable developments, effects, and future of that unique mass.

The pilot reversed the gleaming drum disk. It hurtled away in commencement of its long return voyage to far spaces of the cosmos.



SKYROCK

by Frank B.
Long, Jr.



As Holt watched, the great form seemed to hover for an eternity over the figure of the reporter, still crouching above the entombed girl in an attitude of rapt absorption.

DAN HALDANE stood watching the activities of the rescue crew. The nose of the great silver helicopter was deeply imbedded in the red loam of Radir Valley. The hoisting mechanism was functioning asthmatically, drawing the aircraft with clat-

terings and wheezings from its prison of vegetable mold and clay.

"I was here when they removed the bodies," said Professor Marvin Holt. "Dr. Staubwasser was bleeding from nose and ears and his limbs were shattered. The concussion must have been

terrific. Young Adams Elliott was still breathing, but when I looked at him my mind leaped back instinctively to something I had once seen in a base hospital in France."

He shook his head. "The lad was game all right—game and smiling. But I was relieved when Dr. Jarvis said he couldn't last more than a few minutes."

Holt was a gaunt, loose-limbed man with sun-bronzed features and piercing gray eyes under shaggy brows. He wore a black flannel shirt open at the throat, khaki breeches and shiny leather army puttees. He stood with his hands in his pockets and his head thrust slightly forward. He turned suddenly and regarded his companion. "You from New York?" he asked.

Dan Haldane nodded.

"Newspaperman, I suppose?"

"That's right," said Haldane.

"I've never given you boys a fair chance at me," Holt said. "I've never believed in it. Garbled interviews, snappy misquotations are your stock in trade."

"We helped Staubwasser build his helicopter," said Haldane defensively.

"You helped him by playing up the sensational aspects of the flight," Holt said. "He had no intention of searching for the source of the Radir Valley black stone in the sky. That stone was nothing but a meteor. The so-called human footprint—the 'fossil' footprint—which was found on it was nothing but one of those accidental impressions made by erosion or blasting which you'll often find on aërolites and on dozens of rocks that haven't fallen from the sky.

"I can show you a perfect human face stenciled in solid granite at the base of the Grand Canyon; another in a cave of Kentucky, grinning down between stalactites. In Wookey Hole Cavern in Somersetshire, England, a few miles from where I was born, there is a huge toad squatting on his haunches, upside down, in a roof of coarse gneiss. It's

lifelike enough—but it never lived or hopped.

"Natural forces are constantly etching facsimiles of living animals and plants on wood and stone—on igneous rocks especially. Nearly all igneous rocks have undergone violent cleavage and compression, and many of them bear fantastic floral designs. Such designs could easily be mistaken for human footprints. There are undoubtedly hundreds of freak simulations on rock strata here and abroad. Nothing to get excited about."

Dan Haldane said: "Maybe not, professor. But Dr. Koenig of Boston Testing Laboratories says the print is a true fossil. And you know what that professor—Yardly I think his name was—said about the structure of the bones. Only a human foot, a small woman's foot, could have left such an impression."

Holt snorted contemptuously. "What does he know about it? I tell you, that black stone never came from a fixed point in the sky. It was an aërolith. I'm quite sure even your professors would have to discount the possibility of a human footprint on an aërolith."

"But, look here, sir," insisted Haldane. "If you and Staubwasser didn't think there was something in it, why did you choose this region for your helicopter ascent? Why did you both build helicopters, and why did Staubwasser appeal to the public for funds, and issue no denial when we built him up in the press?

"We played up the black-stone angle for all it was worth; affirmed that Staubwasser wasn't just another stratosphere explorer, that the footprint had convinced him there was something pretty strange about the stone and that, high in the air above Radir Valley, there might be—something floating."

"In defiance of the laws of gravity," snapped Holt. "All sheer poppycock, and you know it. Staubwasser allowed

you to build him up because he had a weak side to his nature. We chose Radir Valley because the atmospheric conditions are excellent here and it's a natural landing field. We chose it for no other reason. I'm an expert in aëronautics—not a side-show artist."

"You're too modest, professor. Every one knows you've taught geology, are a layman physicist with achievements to your credit a professional might envy, and are more interested in the stratosphere from the point of view of——"

A SHOUT from the helicopter rescue crew interrupted Haldane.

The battered silver nose of Staubwasser's plane had swung free of the soil, revealing something that caused the hoisting gang to crowd about breathlessly underneath, with cries and gestures of unmistakable horror.

For a moment Haldane stood staring at the inverted and swaying craft. Then he gasped and tore across the level expanse of reddish soil that separated the rangy form of Professor Holt from the gesticulating crew beneath the helicopter. Below the awesomely clanking neck of the hoisting crane he clumped, his nailed boots dragging at the soil. He came to a breathless halt beside the pointing arm of Ed Kruger, whose rank was that of foreman in the grim contingent of rescue workers.

His eyes popped and he gave a little cry as he stared upward. The silvery nose of Staubwasser's plane was smeared heavily with the red soil of Radir Valley. But projecting from the earth-daubed metal was an object so strange and repellently suggestive of the scrawny forms of nightmare that the foreman's arm trembled and his body jittered as he pointed toward it.

A monstrous claw it was—a twisted, dangling bird talon, iron-rigid and iron-black. It projected outward and downward from the bashed-in nose of the

huge plane. It looked like the four-toed claw of a bald eagle, or a predacious falcon; but frozen to an unnatural stiffness and magnified a hundredfold. No bird of earth had ever possessed a claw of such dimensions. It could have closed easily about a man, and it was not difficult to imagine the sequel to such a clasp.

"Look at that, boys!" exclaimed the foreman shakily. "Just look at that thing! What do you suppose it could be?"

It was obvious that the crew hadn't the answer. They stared incredulously up at it, terror showing in some faces, skepticism and baffled curiosity in others. Dan Haldane was both curious and frightened.

The sheer size of the talon alone was frightening. As he stood there staring at the rhythmically swaying helicopter, immense dark wings seemed to sweep the dry air of Radir Valley audibly and and frightfully above him, and a huge shape lengthened swiftly on the sands. He knew, of course, that it was illusion, but he had to wrench himself out of it with a sharp effort of will.

Professor Holt had left his position on the side lines and was advancing with long strides toward the helicopter when the talon fell. It thudded heavily on the red loam. Two men jumped aside with frightened cries. But Joe Kruger, the foreman's kid brother, didn't jump fast enough. He was nicked.

A razor-sharp claw cut through his clothes, ripped a swath in the flesh of his side. He groaned and sank to his knees as blood spurted.

Holt and Ed Kruger lifted him up and carried him to the emergency tent which had been erected a little distance away to administer to the victims of the crash. Inside the tent Staubwasser and his young assistant were reposing under sheets. The sheets had been drawn completely over their heads. When Dr.

Jarvis saw the new arrival he shook his head. But Kruger was not seriously injured. Jarvis dressed and bound his wound and seemed pleased with the result.

"You'll be O. K. in a week, son," he said.

When Holt emerged from the tent his face was white. He walked slowly to join the little group which had formed about the fallen claw. Dan Haldane saw the professor's tall shadow on the earth beside him, but he didn't raise his eyes. He was completely absorbed in the black claw. The part which had adhered to the silver nose of the helicopter was even more disturbing than the cruelly armed toes. It was a pulpy mass of greenish flesh, flattened, foliated as though it had been beaten into the very substance of the metal by the impact of the crash.

The professor's shadow trembled a little. Dan Haldane raised his gaze then, stared at the tall aeronaut with glowing eyes.

"This pretty well confirms the sensational aspects," he said. "I imagine, sir, Staubwasser found what he was looking for. At any rate, he brought something down with him that will give the conservative, always-print-the-truth boys no end of trouble. I don't believe it, and neither do you—but hell, there it is. We can't argue it away, either."

There was a hectic cramming among the men under the plane. Murmurs of amazement, fright and utter incredulity arose from the clustering group. The hands of the boldest went out, felt the great talon. Suddenly a rather coarse voice pronounced: "Ain't no bird ever lived had a claw like that. Maybe you guys can figure it, but Radir Valley and me is going to part company. There's likely more than one of them things up in the sky!"

PROFESSOR HOLT'S lean, bony fingers sank into Haldane's arm. The

newspaper man was drawn from the appalled group of excitedly jabbering spectators, and compelled to listen to Holt's shamefaced capitulation.

"I was skeptical; Staubwasser believed," he said. "I wanted to spare Staubwasser, so I lied to you when I said he was a skeptic, too. I thought such credulity was pitiful, that it would blast his reputation. But I know now I was a blind fool. This thing blasts me, not Staubwasser."

Haldane nodded, said in a not unkindly tone, "We all make mistakes, professor. But if you didn't agree with Staubwasser, why did you build a helicopter?"

"I knew that Staubwasser's flight would focus the eyes of the world on Radir Valley. I merely wanted to prove that my midget helicopter was just as effective as Staubwasser's giant, and would ascend as high."

"That's the expert of aeronautics speaking," said Haldane, with a gleam in his eye. "The man I want to hear from hasn't put in a bid yet."

"What do you mean?" snapped Holt, a trace of anger creeping into his voice. Was this young whippersnapper taking liberties?

"Just this, sir: Maybe the sky mystery didn't get you, didn't get into your blood, as it got into Staubwasser's. Maybe you don't know it, but I came down here last week and talked with him. He was a man afire."

"So what?"

"You saw that talon. Do you know what the largest living bird of prey looks like?"

"I do," said Holt. "It's the lammergeyer. It's four or five feet high and has a wing spread of perhaps fifteen feet."

"Exactly. And do you think that talon came from a lammergeyer?"

Holt shook his head. "No. Of course not. The bird that owned that claw,

if it was a bird, must have had a wing span of at least a hundred feet."

Haldane nodded. "Staubwasser's plane collided with it somewhere, somewhere high in the sky; collided with such force that the talon and tendons were ripped from the body of the thing and adhered to the nose of the plane. The part where the claw joined the body was practically amalgamated with the metal. You saw it. The helicopter was a giant, yes, but just going straight up and hitting a bird wouldn't have done that. Staubwasser ascended until he was level with something in the sky, and then advanced horizontally toward it. The bird was clinging to it, or perching on it. The nose of the plane bashed into the creature, flattened its leg against a stone surface, and tore it. The mutilated talon adhered to the metal."

"A wild, crazy conjecture," snapped Holt. "You expect me to believe the bird was perching on a stone in the sky?"

"I think you believe it now, sir. I think you're afire, too, but you're more reticent than Staubwasser. The Anglo-Saxon in you is playing the very devil with the rest of you."

Holt's jaw tightened, but there was no mistaking the gleam in his eye. It matched the gleam in young Dan Haldane's eye. "What's on your mind, young fellow?"

"Just this, professor. You're hampered by lack of funds. Staubwasser told me. Your midget plane isn't completed. You refused to solicit funds publicly, as Staubwasser did, because you didn't believe in the black stone. Staubwasser believed, so he could let us build him up. I'm sure his conscience was clear."

The young reporter hesitated, then said abruptly: "We could build you up, too, sir. That talon—it's front-page stuff, you know. If you'll give me first rights on your own story of the midget

helicopter, and let me announce that you're sure the claw is linked up with the black stone, and something mysterious up in the sky, funds will pour in. I'm sure of it."

Holt said suddenly: "I'll need ten thousand, at least."

Haldane was exultant. "I'll get it for you, professor. I'll guarantee it. But I should like to make one request."

Holt's heavy brows came together. "Well, what now?"

"I should like to go along," said Haldane.

For a moment he thought his companion would respond unfavorably, would reject the suggestion with violence. But suddenly, to his utter amazement, there came a reaction that drew all his plans neatly together into one piece, like the assembled fragments of a jigsaw puzzle. Holt's reserve fell away, dissolved.

"All right, young fellow," he said grinning. "I guess if you think there's a rock floating about in the sky with a bird as big as an elephant sitting on it you're too crazy to argue with. But I won't guarantee you a happy landing. I'm not a miracle man, you know."

Haldane smiled. "Sometimes I think I am," he said.

It was no idle boast. Within three weeks he had built Holt up from Gotham to the Golden Gate, in scientific circles and in the tabloids. The swarming urban populations breathed his name excitedly and submitted liberal contributions.

The mid-Western farmers were all ears when Haldane talked about Holt on the radio. Sunday supplements carried his picture; the "talkies" carried his bodily contours and verbal intonations. Two large Eastern universities, a museum of natural history and the Hollywood movie colony contributed stiff support. A Boston lord of millions sent a check in four figures.

FIVE WEEKS after the building up, Holt's midget helicopter stood in bright sunlight on the red loam of Radir Valley. A wide space had been cleared for it amidst a milling throng of serious-eyed men and women. It was nearly noon, and the air was dry and hot.

Haldane stood beneath the spreading silver wings of the tiny plane, consulted a pocket barometer. Holt stood beside him and answered the questions of the newspaper fraternity with a barrage of technicalities.

"The plane weighs fifteen hundred pounds," he said. "It has a supporting surface of about one hundred square feet. Yes, it will ascend straight up."

He pointed with pride at the four horizontal wings. Horizontal axes supported the wings above the streamlined body of the plane, forming a quadruple screw that would raise the machine swiftly into the ether when the motor started to revolve.

"The motor is capable of making seventy revolutions a second," said Holt. "The propellers will, of course, not turn quite so rapidly, but even a minimum of twenty revolutions should carry the plane straight up at a speed of a hundred miles an hour."

"You've got a queer arrangement there," said a red-headed lad attached to a Chicago syndicate. "One propeller to each wing. I never saw anything like that."

"It's the only arrangement that will work in a helicopter," said Holt. "Each wing has to be driven separately to distribute pressure and balance."

He reached up and laid his hand on a vertical propeller attached by a shaft to one of the wings. "The propellers drive the wings around horizontally in a kind of cat-and-mouse chase," he explained.

"How about directional flight, professor?" asked the redhead.

"When I want the plane to move forward I lower the wings," replied Holt.

With demonstrative abruptness he

heaved his rangy person into the cockpit and seized a control stick. The reporters leaped back with startled cries as the four wings descended toward the earth. Holt laughed, rather maliciously, and swung the stick backward, causing the wings to rise like the spokes of a wind-inverted umbrella.

He was perspiring slightly from his exertions when he leaped to the ground.

"Anything else you lads would like to know?" he asked.

Haldane looked up from the instrument in his hand, smiled. He knew that "the boys" would have liked to ask questions all day—and night.

"Any innovations in the stratosphere suit, professor?" asked the redhead.

"Yes, I've made a few changes," replied Holt. "Staubwasser wore a steel helmet. I shall have an aluminum one. And I'm using a smaller oxygen tank and a more compact parachute. The interior will be heated electrically with a network of wires. The helmet will be flooded with gas in just barely sufficient quantities. Too much pressure would be dangerous. The big problem will be to cut down pressure within the suits to a minimum. We'll strip and tape our heads before we put on the suits."

There was a long silence while the reporters thumbed notebooks and prepared a new barrage of questions. But before they could release them, things began to pop.

A lad broke through the circle of spectators and dragged two cumbersome stratosphere suits toward the helicopter. The press would have pounced on these, but Haldane waved them back with a sweep of his arm.

"Use what you've got, boys," he said. "We're getting into these wrappings now."

Speedily and in grim silence the two men stripped to athletic shirts and shorts, taped their foreheads with thin strips of muslin. Then they donned the suits, which transformed them in an

instant into shapes fantastic and incredible.

With slow, ungainly movements the two large-headed, goggle-eyed creatures ascended into the helicopter. Holt settled himself behind the controls in the cockpit, and Haldane climbed into the passenger seat. A murmur arose from the crowd of onlookers. They surged forward, pressing against the cordon of police that hemmed them in.

Holt tapped out a message in Morse code on a sounding board at his elbow which transmitted vibrations to a vertical bar in the passenger seat. By resting his helmet against the bar and manipulating a sounding board of his own, Haldane could receive and respond to the message.

"I'm all set. How about you?" Holt tapped out.

"Set," signaled Haldane.

Holt manipulated a complicated mechanism and the high-powered, oil-cooled motor whirled into sudden activity with a deafening roar. The propellers spun; the great wings turned, slowly at first, and then more rapidly, and the midget helicopter left the earth, mounted straight up at the rate of twenty feet a second.

The crowd broke through the police line, swarmed over the roped-off space, trampling the red loam where the helicopter had stood. They cheered and shouted. But in the ascending plane Holt's mind was not on the little gesticulating figures of earth.

Above his head the summit of the corrugated fuselage droned and vibrated. A massive carburetor revolved with the motor, causing the streamlined body to oscillate rhythmically from nose to tail. The outriggers and vanes attached to the revolving wings thrummed also, adding minor notes to the whirring symphony.

HIGH into the air the helicopter soared. The earth beneath receded,

AST-5

shed its scenic grandeur. The long range of pine-dotted hills which rimmed Radir Valley to the north shriveled into raised corrugations of indefinite hue; the silver lake three miles to the east of Radir Dam became a tiny metallic spangle lost in an immensity of flat, seemingly unvaried topography.

At twenty thousand feet Holt signaled: "We're ascending faster than I anticipated. Feel any discomfiture?"

Haldane signaled back. "I'm O. K. Have we hit the tropopause yet?"

"We're at about 22,000," replied Holt. "Things won't be so pleasant from now on."

The two men fell silent. The helicopter soared through the tropopause and passed into the lower stratosphere. Far beneath, the earth was now beginning to show a distinct curvature. Its surface was like a map, but a map whose edges were curiously distorted.

"All right?" signaled Holt.

"O. K., but cold," responded Haldane. "What's the pressure?"

"About one eighth of sea level. I'm afraid if we were outside our suits we'd burst wide open, like the fish Mr. Beebe brought up from a quarter mile."

The helicopter soared steadily upward. At fifteen miles the air was filled with dazzling motes of metallic dust. It was of a sparkling brilliancy, however, unobscured by vapor or cloud wisps.

Above them, the heavens were of purplish cast, and the constellations, the solar orb and the aurora borealis were simultaneously visible in different portions of the sky.

Holt tapped out the barographic and thermometric readings. "Temperature's rising rapidly. Don't look directly at the sun. Ultra-violet rays are dangerous at this level. How do you feel?"

"O. K.," replied Haldane. "Do you think——"

The lurch of the plane checked his fingers on the sounding board. The helicopter jerked sideways, spun about

like a top. There was a roaring in the ether. In blind, instinctive terror, Holt gripped the controls as the invisible blast tore at the wings and roared through the fuselage.

Frantically he strove to syncretize the adjusting unit in the rear of the cockpit with the maelstrom of seething air. At blind hazard he manipulated the stick, tilting the control surface at the extremity of the wings to meet the blast as though it were a gale in the lower atmosphere. It was the sanest act of his life. Though his estimate of the force and direction of the blow was groping and inaccurate, his instant response saved the helicopter from complete destruction.

The tail vane buckled and one of the wings was ripped away. But before another could go the turbulent gust carried the plane across a mile of stratospheric waste in a swift, sweeping arc, and wedged it securely between two long arms of stone eighteen miles above the surface of the terrestrial globe.

The helicopter shivered, but there was no crash, no violent shock even. The gale died out as quickly as it had arisen. For a moment there was no sound or movement between the granite arms. Then from the wrecked plane two badly shaken men clambered, their eyes wide within their stratosphere suits, their features twisted and twitching with terror and incredulous awe.

Holt climbed to safety first. He reached down from the summit of the topmost rock, and helped his companion up.

The helicopter was pinioned between the two long outcropping rocks so firmly that it did not even sway as the two men ascended over the shattered wings. The rocks extended from a level surface fifty feet into space, and looked in silhouette like the half-opened jaws of an enormous crocodile.

Holt and his companion kept their eyes riveted on the black rocks ahead.

They sensed instinctively that if they wavered an instant and gazed downward an awful dizziness would engulf them. Their heavy shoes dragged on the uneven stone and their cumbersome suits made progress slow and difficult.

Ahead loomed a sight breath-taking, stupendous. Across the dark outcropping rock, they were approaching a sky-land of crag-hung hills and wide, black gorges. The hills had incredible shapes. A few were domed, a few truncated, and a few thrust evil-looking snouts jaggily into space.

They dared not pause for fear of falling, but every step was perilous, and as they swayed on the narrow projection eighteen miles above earth their minds reeled with the horror of their predicament. But somehow they surmounted the immediate peril, and soon found themselves on wider, firmer foundations. Swiftly they retreated from an edge that overhung an immensity of space, and shambled across a stony waste to the base of a beetle-browed cliff.

Holt sank down and quelled a suicidal impulse to unscrew the helmet of his suit, and breathe the warm, helium-tainted air that surged about him. His face within the helmet was of waxen hue.

Haldane stood for a moment staring feverishly about him. Then he sank down beside his companion. For a moment the two fantastically clothed figures, looking like Martians fallen from the sky, half reclined against a dark and rugose rock formation that towered straight up behind them.

Then, waveringly, Holt's rubber-gloved hand went out and fastened on a loose stone the size of a hen's egg. He raised it, and brought it down on Haldane's helmet with a decisive whack. Again he raised it, repeated the movement until it became a communicative tattoo that stirred the other to an active response.

"Take it easy. Cut out the heavy breathing," Holt signaled.

Haldane's eyes shone with comprehension within the eight-inch circular window in the front of his helmet. He nodded, picked up a stone.

"I don't look so well, eh?"

Holt tapped: "We're lucky to be alive at all."

THE TWO MEN were silent for a moment. About them nothing moved. They were in a region destitute of vegetation, destitute of sound. There was no stir of live things, no whirl of wings or snatches of bird song, nothing but an interminable wilderness of rock. Suddenly Holt began communicating his sense of wonder and alienage in a burst of rapid signaling.

"Not impossible to explain this. Assume there was a volcanic upheaval on earth, thousands, perhaps millions of years ago. This rock island was hurled high into the sky, into a kind of vacuum in the ether."

He paused an instant, then resumed: "We got caught in an aërial maelstrom, were drawn in. Don't you see? Around the edges of such an unnatural vacuum or vent in space there might be fierce, turbulent air currents. A vacuum impinging on the normal stratosphere might easily produce such a phenomenon. We were caught up, sucked in, just as the original rock island was far back in earth time."

"You mean—held in permanent suspension?" signaled Haldane. "You mean we're in a kind of space void where the laws of gravity can't function?"

"Yes, that's it," replied Holt. "Einstein might explain it differently, might say that space curves here at an unique angle, so that objects within the earth's gravitational field are not drawn to the crust inevitably, as they would be if the gravitational curve, or dimensional curve were normal. He'd perhaps call it a

superdimensional void. But it amounts to the same thing."

Haldane's brows were contracted within his helmet. He was thinking furiously. "But it doesn't jibe. Staubwasser's plane fell. It was here, and fell. Why——"

"Perhaps the vacuum is porous," tapped out Holt excitedly. "Shot with tiny holes. Perhaps small objects, a plane, men, could fall out of it."

His eyes were shining. "By gad, that must be it! The void as a whole is superdimensional, but there are certain areas, minute openings where the normal stratosphere impinges. That's why the black stone fell. Small objects, broken off from this world, would respond to the gravitational pull."

Haldane was getting to his feet. He was appalled by the ominous alienage of everything about him, by the realization that he was marooned in a world that did not link at any point with the known, the familiar. But he did not intend to sit and speculate. His curiosity was burning far too brightly for that.

The black, stone surface beneath him was pitted as though from meteoric bombardment. His heavy boots scraped over depressions, dragged at the edges of longitudinal crevices. Holt continued to lean against the cliff, appraising the new, stupendous world without venturing across it. He was calmer than Haldane, more detached and collected.

He knew that near at hand might lurk forces, perhaps forms, menacing and incalculable, and he did not propose to exhaust himself prematurely. From a practical point of view he was wiser than his companion, but the startling surprises of life, the sudden, blinding glimpses into bright gulfs of beauty and wonder are frequently barred to the cautious of earth. Thus it was that Haldane saw the incredible thing first.

Stumbling not too cautiously over the uneven rocks of that alien, incomprehensible space island he saw the white

woman's body lying asleep under stone as translucent as the heart of a sapphire.

Gasping, he sank to his knees, and peered down through the transparent surface which covered her. Miraculously she was embalmed there, imprisoned in a mineral tomb that glowed with a pale, bluish radiance. Embalmed like a mummy under glass, but in a sanctuary of rock deeper and broader than a mummy case, with strange tools and artifacts beside her, and with a look on her face that fevered Haldane's veins.

He peered closer, in a breathless awe. The woman was small of stature, with delicately chiseled features and slender, white limbs. Her face had an exotic cast. The supra-orbital region was broad; the eyebrows arched as though in puzzlement. Her skin was Caucasian-white save on her cheeks, where it shaded to a pale violet. She was clothed entirely in long, black tresses which descended to her knees.

Between the dark strands her skin gleamed brightly here and there. The little red wound of her mouth made Haldane's senses reel. Although her eyes were closed, a capacity for undreamed-of tenderness was stenciled on her pale countenance. It flowed out from the still, lovely face in potent, mysterious waves.

Presently Holt joined him beside that blinding wonder on a rock island in space. The two weirdly clad figures swayed above the crystal-surmounted crypt in a hushed moment of speculation and awe. Then Holt tapped:

"Evidently buried deliberately. You can see where the crystal has been fitted into the rock. By Heaven, this is tremendous! She's evidently of some prehistoric race of high development. Probably the same race that left the fossil footprint on the black stone. We can only guess how many millions of years ago. Far back in geologic time, certainly. This upsets all preconceived notions as to the antiquity of man!"

SUDDENLY he stopped, stared. Not far from the rim of the crypt, where the crystal covering merged with the dark adjacent granite was a stretch of gravelly soil. This soil was not untrod. Embedded in it was the impress of an enormous talon!

A cold chill fastened on Holt's heart. Sharply impressed on the soil beyond the first imprint was another, and beyond that a long line of talon prints stretched away toward the twisted crags and huge, beetling cliffs.

Haldane was so absorbed by the girl under the blue crystal that he did not see them, and before Holt could call attention to them a shadow came out of the west and lengthened swiftly on the dark rocks about them.

When Holt saw the shadow and saw what had cast it he turned in terror and moved with frantic, awkward strides across a level expanse of black rock toward the huge, outcropping jaws that gripped the helicopter.

His objective was the cockpit of the plane. Within the battered streamlined body reposed a repeating rifle, and a round of ammunition. He knew that if he could get his hands on that he might yet save Haldane and himself. It was their sole chance.

He reached the rock and moved frantically along it until the plane was directly beneath him. Then he stooped, lowered himself by his hands.

Within the cockpit, his fumbling fingers fastened on the rifle. His heart was pounding furiously; his breath came in labored gasps. Climbing out again with the heavy weapon was a difficult feat. Awkwardly he heaved himself up over the helicopter's wings, crawled for a few feet on his hands and knees over a narrow section of slanting rock, and then rose to a kneeling posture.

From his position, midway on the projecting arm of granite, he could see Haldane clearly. The reporter was still

crouching above the entombed girl, in an attitude of rapt absorption.

Immediately behind him a great form towered. Its body was a wavering shadow flecked with tiny, bobbing blobs of light; its head a flattened mass of gleaming flesh, reptilian in contour. Only its immense, feathered legs were birdlike. Planted firmly on the black stone beside the crypt they did not move as immense shadowy wings flailed the still air above Haldane's head. The stars shone dimly through the form's shifting bulk.

For an eternity it seemed to hover above the little human figure at the edge of the crypt. Then its great body quivered, and it buckled in a sidelong swoop.

Holt's rifle leaped to his shoulder. At the same instant a piercing cry echoed and reëchoed through the black caves and canyons and gorges that rose in stark silhouette against the star-hung sky. The great form's flat, newtlike head had caught the reporter about the waist, and was lifting him high into the air.

Rifle fire hammered the cliff edge then with a staccato crackling, drowning out the crunch of teeth on human bones and sinew. Mercifully for Holt his bullets went wild, splintering against the cliff face, and spattering loose gravel about the firmly implanted talons of the great form.

Holt rose to his feet, lurched forward, firing again and again, until the barrel of his weapon grew hot. Each concussion shook his body, but he continued to advance until his right foot slipped and his weapon roared simultaneously. The double jolt was lethal. Dropping the rifle, he swung about, clutched frantically at the air, and toppled from the ledge.

HE FELL swiftly through the bright, warm air. A hundred feet below the rock island his parachute bloomed. Bil-

lowing on the rarefied air, it carried him safely downward through the torrid, bright regions of the upper stratosphere, through the hideous cold of the tropopause, and finally through the familiar atmosphere to the red soil of Radir Valley. He came safely to rest on a sloping bank a few feet from the still, silver waters of Radir Lake.

When the representatives of the press found him and assisted him out of his stratosphere suit his first wild impulse was to talk freely.

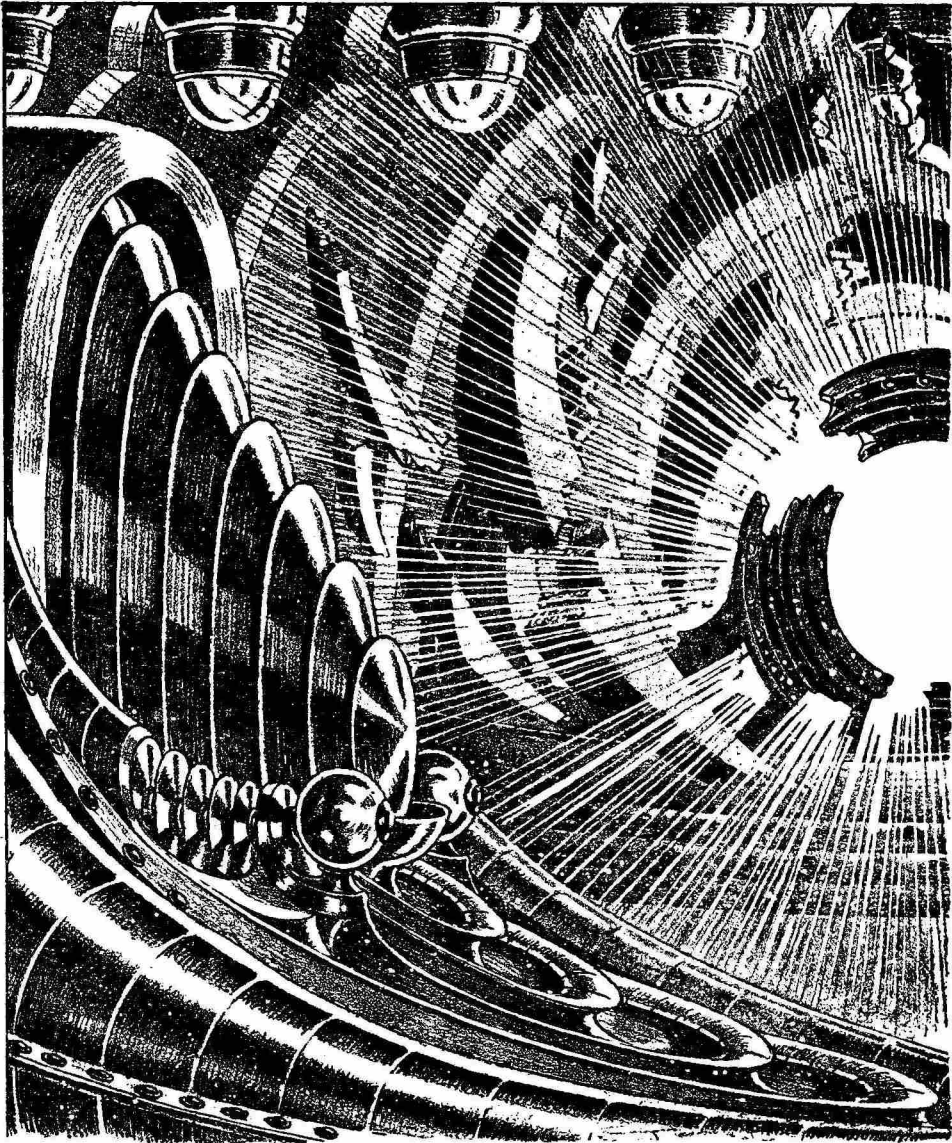
He wanted to exclaim: "There's a great island of stone floating in the sky high above Radir Valley. It was probably hurled into the ether, into a kind of vacuum or vent in the sky by some titanic volcanic upheaval on earth in the dim past. It contains a rock tomb, and an embalmed woman whose beauty is incredible.

"She undoubtedly belonged to some old earth race that became extinct millions of years ago. And there are things up there that never walked the earth. I think they're from some other planet. Perhaps they came from beyond the solar system. They were sucked in by the vacuum in space. Perhaps the vacuum saved our world. The things were caught up in it, and will probably always remain there, for they are too huge to fall through the pores in it. I think they've made a kind of shrine of the woman in her rock tomb, that they worship her. We stumbled on their sacred shrine.

"Poor Haldane worshiped her, too, was enraptured, in fact. He gazed on deathless loveliness before he died."

But he resisted the impulse. A worldly-wise caution froze the words of truth that crowded thickly on the tip of his tongue. He simply turned, nodded grimly at the stretch of silver water before him, and said: "The helicopter cracked up before Haldane could bail out, and fell into the lake."

The Blue Infinity

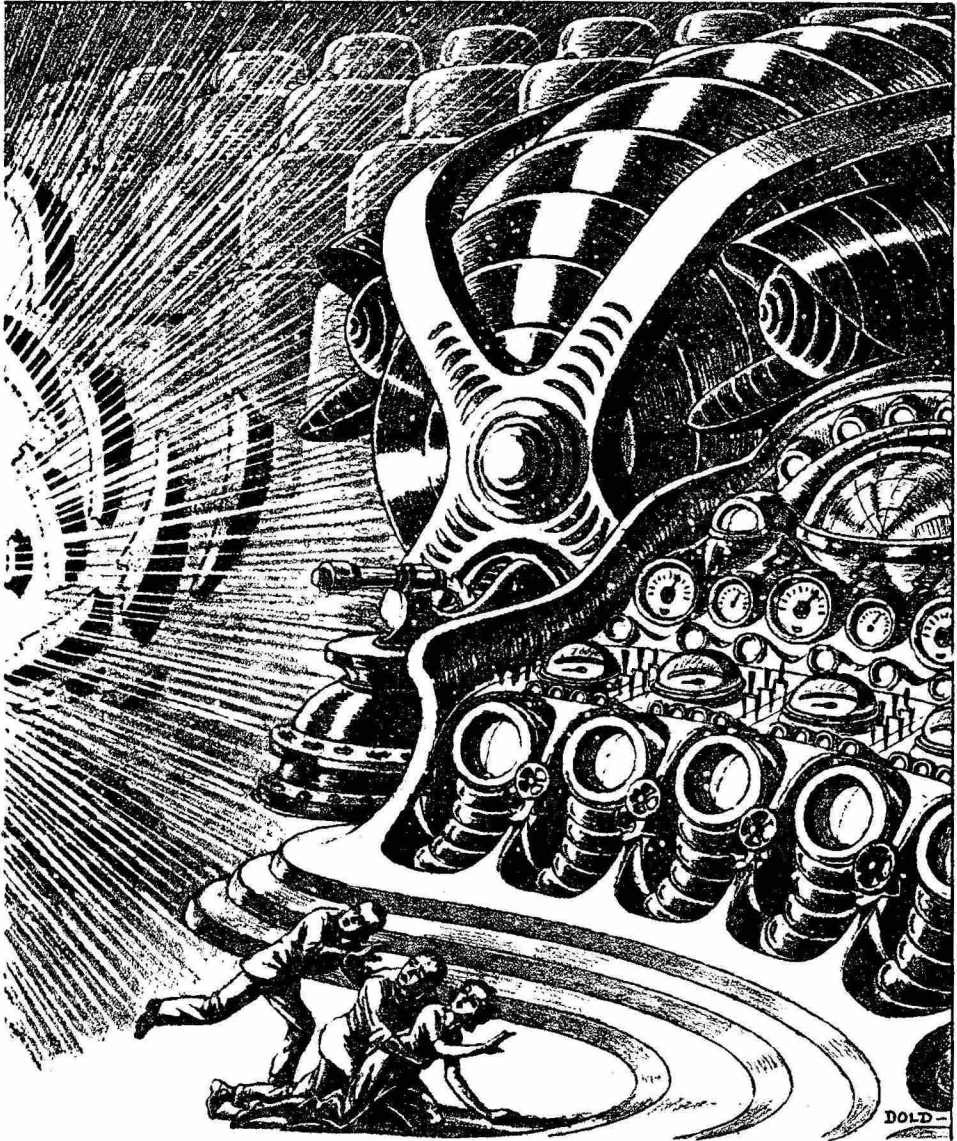


TO MY DAUGHTER, Eunice Banks, I bequeath all my estates and possessions, including my scientific-research laboratory situated in the Scottish hills. Also, a sealed letter in the triangular safe in the north wall

of the aforesaid laboratory. It is my wish that my daughter, the said Eunice Banks, read this message and make full use of the knowledge contained therein. In her I vest all my ideals and hopes; I feel that she alone is capable of bearing

A Novel In Which the Earth Moves!

by John Russell Fearn



The Tripler-generator burst itself asunder in a mass of white-hot metal. Bars of steel hurtled through the air.

the tremendous onus of saving the Earth—for such a task will indeed ultimately become hers! Signed, Rodney Mansfield Banks, October 17th, 1937.”

The lawyer ceased to read, and looked over the tips of gold-rimmed spectacles at the little audience gathered round him in the great ancestral lounge—home of

the late Sir Rodney Mansfield Banks, Baronet, scientist, author and idealist.

Practically a minute passed in complete silence, then a gathering mutter of intercourse swept up and passed over the relatives and friends of the deceased genius. Bickering, quarrelsome talk for the most part. Everybody save one rose to their feet, became absorbed in muttered wranglings.

The one who remained seated was Eunice Banks herself—twenty-three, the daughter and only child of the late Sir Rodney. She sat in silence, lost in thought, for a considerable time after the lawyer had ceased reading the will.

Eunice was not a beautiful woman—nobody could truthfully have said so—but she possessed an odd, rare distinctiveness. When standing, she was tall and regal, with a certain air of command inherited from her distinguished father. Her hair was coal-black, her skin ivory-white, and her eyes an arresting and vivid sapphire. They were the eyes of an idealist, a dreamer, and a thinker. The eyes of a woman destined to pattern new paths—the eyes of a woman born to lead, command, and achieve.

Eunice was a scientist, possessing ultra-advanced knowledge gained from her father's amazing, almost incredible researches. She knew what lay in the message in the triangular safe; she knew the vastness of the incumbency shortly to rest upon her shoulders—

Small wonder, then, that she sat absorbed in the deepest meditation, ignoring, and ignored by, her talkative, useless relations—

TWO YEARS after the death of Sir Rodney, on October 19th, 1939, the most alarming news ever issued from scientific circles burst upon a staggered world.

Earth was doomed!

Approaching Earth's orbit at an enormous, well-nigh incomputable speed,

was a runaway star. Creation was to repeat itself. The star, according to the first calculations, would pass so close to the Sun that it would pull the Sun clean out of its normal position, and hopelessly upset the finely-balanced equilibrium of the solar system. The destruction of Earth itself seemed inevitable.

But these were the first calculations. Six months later, Dr. John Morgan, one of the greatest living astronomers, issued the report that his figures proved the runaway star would not pass close enough to the Sun to actually move that body. It would most undoubtedly emit great and destructive gravitational fields, the effect upon the Sun being, at that time, indeterminable. He might become a nova— In any event, nothing could be done about the matter. Mankind could only look on and watch in growing trepidation—

Another year passed and the runaway star came close—a blindingly brilliant blue-white orb, with the faint evidence of a disk in the night sky, finally appearing even in broad daylight as it crossed the same side as the Sun. Earth shifted very slightly in its orbit with the combined pull of star and Sun, the star possessing a mass slightly greater than that of the Sun.

October 26th, a week later, at 4:18 p. m., would see the closest approach of the invader to the Sun. Upon the effects of that approach depended the future of Earth. In every quarter of the world—a world lashed by rains, hurricanes and tidal waves—trembling humanity waited for the verdict. A few who understood more than their fellows praised Heaven that the star had passed at a distance great enough to make Earth comparatively immune from its frightful heat. It was the effect on the Sun that held Earth's fate in the balance.

The fated day arrived, and for two hours after 4:18 p. m. Earth was a

globe racked with terrific earthquakes and tremors—a shifting, intoxicated planet in the toils of two gravitative masses. Cities cracked, and in many places toppled down completely. Mankind struggled to survive, and to a great extent succeeded, the worst disasters occurring on the side of the Earth facing the dual suns.

Then the furies began to abate; celestial horror began to relax its grip. Two days afterwards Earth, steady again, emerged from the ordeal, a thrashed and hammered planet, but still alive and circling in her orbit—an orbit pulled slightly more circular than had formerly been the case.

The star was already waning, vanishing in infinity, its unpleasant visit already becoming a memory in the minds of men—

Another year passed and man rebuilt the world—London, New York, and all the chief cities rose up from the ruins of the old. The ordered precision of life went on, monotonous, humdrum, the petty round of work and play calculated to make existence tolerable.

Then came a change!

The first evidences of something seriously amiss somewhere obtruded itself through the ranks of commercialism, pleasure and progress. The news of the entire annihilation of a city's populace during a frightful, record-breaking thunderstorm in the tropics, signaled the commencement of more trouble for recovering humanity.

Subsequent details proved that the city of Rio de Janeiro had experienced a terrific thunderstorm which had commenced at high noon. In an hour, the storm had reached a fury unparalleled in the history of the Earth, dwarfing even the disaster occasioned by the passing star. Rio had become a blaze of lightning, a tumbled ruin in the midst of a gigantic and awe-inspiring electrical upheaval, that had blasted the very city from its foundations and electrocuted

the entire populace into ashes! In four hours Rio was but a memory—a wilderness of blackened stones and scorched and dismembered corpses! The whole world went into mourning, not realizing even then that other disasters of a similar type might occur.

Scientists set to work to rigidly study the problem, grimly refusing to believe that a mere thunderstorm, no matter how violent, could be the real explanation of such wholesale havoc. And whilst they were examining the matter, a second and even more devastating radio bulletin—warped with tremendous atmospherics—hurtled round the Earth to every civilized land.

Australia had completely disappeared—in a similar electrical storm!

The entire island had been struck by the storm at 2 p. m. in the afternoon, on a gloriously fine and sunny day. The remarkable thing, according to one solitary survivor, was that no clouds had been present, no rain had fallen, and no thunder roared! Sheer, blinding electricity had suddenly appeared out of an empty sky, enveloping the atmosphere. The air had become a mass of hurtling bolts of disintegrating energy.

In an hour the island was riven in twain. Torres Strait became a seething channel of unthinkable electric voltages. At 4 p. m. Australia itself, bleached and blistered, bearing nought upon its surface but the dead, vanished into the midst of the boiling ocean, leaving no trace—sucking down Tasmania in the ensuing mighty vortex, and sending forth a tidal wave that shattered the shores of every country associated with that particular ocean.

The world was stunned.

DR. MORGAN, the scientist who had made the calculations on the runaway star, found himself the center of inquiry, and finally, a theory in mind, he consented to impart his views to the world. This he did from the London

studio, two days after the disappearance of Australia from the Earth's face. Everybody who possessed a radio tuned in to listen to his words, feeling in their dilemma that he was the only man capable of knowing anything at all about the complicated mystery.

"My friends," he said into the microphone, in that quiet, decisive voice of his, "I know just how you are feeling, and know the terrible fear that must be in your hearts. I sympathize with you, too, in your grief for your lost ones who were killed in the terrible Australian disaster. Indeed the Earth is convulsed; the sinking of Australia produced widespread and disastrous tidal waves, as you are aware—— It is with great sorrow that I have to tell you that your fears are justified, and not groundless! We are, my friends, a doomed humanity! We thought the runaway star would be the end of our existence on this planet, but we survived it—only to discover that it is the star's effects that are directly responsible for these present unspeakable tragedies——

"I will try not to be too technical in my explanation, but my researches reveal that what has taken place is this: The star, in passing close to our Sun, ripped from the Sun—or at any rate weakened—an invisible globe of blinding energy that exists about our day-star. That blinding energy is visible only during an eclipse. Astronomers, for lack of a better name, term it the corona. Actually, this corona is a shield, fairly similar to the heavyside layer, which girts in our atmosphere—a shield of force. I have known for some years that the corona was such a shield, invisible under normal conditions. In the ordinary way, its effect is to stop dangerous electrical radiations reaching the planets from the Sun.

"The Sun is, of course, an enormously electrified body. This provision of nature prevents what would otherwise be disastrous floods of solar electricity

striking the planets about him. The runaway star, however, has ruptured and dragged away certain portions of this invisible shield and, instead of repairing itself, the breach is widening! Through that breach are streaming, therefore, the electrical forces that normally would be kept in. The Sun has a slow revolution, of course, and each time this tear in the corona faces the Earth we experience a most frightful electrical disaster!

"So closely have I studied the problem, indeed, and the revolutions of the Earth and her orbital and axial movement in relation to it, I can predict to a day where the next electrical storm will strike. I calculate that Vienna will be the next victim, and would advise immediate exodus: the storm will come in, roughly, four days. Please understand that these calculations are based on the breach being the same width each time. What is most likely is that the breach will widen, until finally Earth will be completely enveloped and destroyed. Once this happens, space itself, for an enormous distance beyond the remotest edges of our own solar system, will be a mass of highly deadly electrical energy.

"That, my friends, is the explanation of it all. At best I give the world a year to live—a year of terror and destruction. It is for us to face it like men, and be strong. Good night, everybody."

On that note the doctor left the broadcasting station, and returned to his home in Mayfair. Entering his laboratory at the rear of his residence, he discovered his younger brother, Jerry, seated before the now switched-off radio, holding his head in his hands.

"Hello, Jerry!" the doctor exclaimed, genially enough. "What's the trouble?"

Jerry looked up with a slight start. He was a fair, round-faced fellow, good looking except for a rather indecisive chin which immediately pronounced a streak of weakness somewhere in his

character. His pale gray eyes shot to his brother's square, intelligent face. Then he slowly gained his feet.

"That talk of yours, John—— Did you really mean it?" he asked in a curious voice.

"Certainly. I meant it. Earth is doomed, and we'll have to make the best of it. Why do you ask?"

"I—I just wondered if there was a glimmer of hope. That's all. It's such an awful thing to happen; it frightens me, John. Honestly it does!"

The doctor shrugged. "That doesn't surprise me, Jerry. You never were a man of much courage, anyhow. Pull yourself together, man—brace up! For once in your darned selfish life, face your doom like a man!"

"Easy to talk, isn't it? Just bravado on your part, that's what it is. If you were half the scientist you make out you'd have found a way to save humanity instead of letting it be destroyed."

The doctor's eyes gleamed brightly. "And if you were anything of a man at all, you'd have helped me through the years instead of sponging on my fool generosity. You——" He stopped and looked up in some surprise as the manservant entered, a card upon his salver.

A frown crossed the scientist's brow as he glanced at the pasteboard.

"Miss Eunice Banks?" he muttered. "Never heard of her. Funny time for a call—nine o'clock at night—— All right, Jameson, show her in here."

"Yes, sir."

A MOMENT ELAPSED, then Eunice Banks herself came quietly into the laboratory—no longer a girl of twenty-three, but an experienced woman of twenty-eight. The two brothers studied her regal approach in silence. The doctor extended his hand as her eyes glanced from one to the other in silent inquiry.

"Dr. John Morgan?" she asked, in a rather deep but pleasant voice.

"Yes. Please be seated, Miss Banks. Allow me to introduce my brother—Jerry."

"Glad to know you," Jerry grunted uncivilly, and leaned against the bench to mentally sum up the girl.

"Now, Miss Banks, is there something I can do for you?" the doctor asked quietly. The girl smiled faintly.

"No, doctor. On the contrary, there is something I can do for you. My name of itself, probably, implies little, but it may have some importance when you know that I am the daughter of Sir Rodney Banks, the astronomer. He died several years ago."

"Rodney Banks!" the doctor ejaculated delightedly. "The man who wrote that superb treatise on a second universe?"

The girl nodded silently. "The very same—but of course I merely mention his name so that what I am about to explain to you won't sound like the mouthings of an imaginative schoolgirl. You see, I heard your talk over the radio and realized that, along with my late father, you are the only man alive who knows the cause of Earth's present troubles. Solar radiation is quite correct. My father knew as long as twenty years ago that this would happen. Genius that he was, he made provisions for the disaster when it came, nominating me to carry out his ideas if death intervened and prevented him—which unhappily it did.

"He was, as you know, one of the greatest living astronomers. During his researches some fifteen years ago he first discovered the moving speck of incredibly distant matter that subsequently proved to be the unpleasant passing star. He began to compute the movement of that star, the time it would take to arrive, and everything about it, determining at last a series of events exactly identical to those which did occur. I

refer to the rupturing of the corona, and the outflow of violent electrical disturbances.

"Realising that all this would take place, my father set to work to decide how best to save the Earth when the time came. He tried every means he could think of, and at last decided that the only thing to be done was—to move the Earth itself!"

"Good heavens!" the doctor gasped blankly. "Do you really mean this, Miss Banks? You are speaking of something—something tremendous!"

"Rot—that's what I call it," Jerry muttered, though he was willing to admit the girl had a certain persuasive power.

Eunice was apparently unmoved. "My father was a remarkable man," she went on. "He dared not publish his theories for fear of criticism, so instead he instilled into me all his knowledge; from a child I was always with him. He explained his machines point by point; I lived on meals of cog wheels and dynamos. I slept with dreams of generators and electric voltages. Finally he built the actual laboratory capable of shifting the Earth itself—or, I should say, the machinery inside the laboratory.

"When he died he left me a message in which he explained the final details of how to work his machinery in case I had forgotten anything. Also he explained that once the electric disturbance from the Sun began, it would spread through space and make space itself a deadly mass of energy for a distance reaching clear to the orbit of Neptune—even beyond the orbit of Pluto. Removal of Earth is the only thing that can save it, doctor—and it can be done! I alone can do it, but I would like assistance, such as you can give. Your speech on the radio decided me that you were just the man for a partner. I know every intricacy of my father's machinery now. Even when the star

upset the world, the laboratory in the Scottish hills remained impregnable."

The girl fell silent, her compelling sapphire eyes on the doctor's face. He himself began to wonder if the girl was a scientific crank, but a certain expression on her face gave back a negative answer to that grand theory.

"Since your father knew all this, why the deuce didn't he shift the Earth before the star came and save all the trouble?" Jerry demanded. "Why wait until now?"

"Because even the best of calculations are sometimes wrong; and my father decided it was better to watch the outcome before making such a colossal move. But now the time is more than ripe—Earth is in greater danger every day. If you agree, doctor, we can take off in a month from now."

Morgan spread his hands helplessly.

"My dear Miss Banks, you speak of moving the Earth as though it is of no more importance than moving a chair across a room! Where are we going? How is Earth going to stand it? Where is our Sun to be?"

The girl rose with sudden decision to her feet.

"I'll explain all that to-morrow, doctor. I rest assured that you will aid me, so please make arrangements to leave for Scotland at ten in the morning. I will call for you in my car. I think I shall convince you; if I do not, I shall work alone. I know, and therefore I am confident. In all seriousness, doctor, can't I rely on that much from you? With a mind so broad and untrammelled as yours?"

The point was won. Clever though he was, Morgan was not averse to flattery. He smiled pleasantly as he shook hands again.

"You may rest assured of my most earnest coöperation, Miss Banks," he answered firmly. "But, really, I would like to know where our next Sun is to be——"

The girl had already reached the laboratory door, where Jameson stood impassively at attention, before the doctor had finished his sentence. She turned at his words.

"Did you ever hear of Alpha Centauri?" she asked, a faintly amused light in her splendid eyes. Then she vanished from view, leaving the doctor and Jerry staring amazedly after her.

II.

THE DOCTOR kept his word and at ten o'clock the following morning he and Jerry, their affairs left in order for an indefinite and prolonged stay, accompanied the girl in her fast car from London to Scotland.

As time passed Eunice proved herself to be anything but eccentric; on the contrary, from her comments, Dr. Morgan began to realise he was dealing not with a crank, but with a genius among women, whose knowledge could easily put the cleverest man in the shade. Silently he thanked the fates for the radio speech that had led him into contact with her. With each passing hour he grew to admire her more—and so, in a different sense, did Jerry. To him, Eunice was a woman. To Dr. Morgan, she was a mind, peaks above all others.

The journey, punctuated by a meal in the midlands, occupied a space of twelve hours, and the darkness of the winter night had descended when finally the powerful car swept up a long, winding road somewhere in the deepest regions of the Scottish Hills. Manifestly Eunice knew her way like an open book. She twisted the steering wheel with unerring accuracy, around bends, over rises, through avenues of gaunt, leaf-void trees—and at last into a long drive culminating in the longest white caterpillar of a laboratory either of the brothers had ever seen. In the glare of the headlamps it seemed to reach

backward into darkness for at least a mile.

The car halted and the trio descended stiffly to the ground.

"The laboratory, my friends, and also a home of sorts," the girl explained, with a little, yet all-embracing flourish. "Come along with me. Nobody lives here except an unimaginative old housekeeper and her husband, who perform the joint duty of keeping the place guarded and clean. There is no other life within twenty or thirty miles. Come—this way." She preceded the two brothers with elegant determination to the massive, peculiar door of the immense white edifice.

"Oh, yes, a current-proof door," she explained, in response to the doctor's inquiring glance into the gloom. "You see, within these walls, I tamper with voltages that would make a power house seem like a flashlight battery by comparison. The door, walls and roof of this building are all lined with vacuums, so that the inside can maintain a steady temperature under any external conditions. Ah! Here we are! This lock is rather complicated. Please come in."

Silently, wonderingly, the brothers obeyed. They stood for a time looking upon a vista of the unexpected. Upon every side machines and scientific apparatus, of which the doctor understood very little and Jerry nothing at all, were present—looming, shining and mysterious.

The girl smiled strangely, as though to herself, removed her hat and coat, then led the way with easy grace into a contiguous apartment—a neat but small living room replete with every known electric labor saving device.

The taciturn housekeeper and her husband presently made themselves evident. No lines on either of their aged faces moved in the slightest at the presence of the girl's two guests. A meal, warm and satisfying, appeared from

regions unknown, cigarettes followed. Then, far from revealing any signs of strain from her long driving spell, Eunice led the way back into the laboratory, cigarette between her long, capable fingers.

"As I mentioned to you, Dr. Morgan, the safest way to keep Earth from danger is to remove it *en bloc* from here to a place of safety."

"I still cannot believe that you can shift the Earth," the doctor returned, clinging to his powers of trained reasoning, which instantly giped at the girl's seemingly fantastic theory.

"I do not ask you to accept the idea without proof," she calmly replied. "The Earth can be moved through space, and will ultimately gravitate, quite comfortably, around Alpha Centauri, the nearest star."

"But, Miss Banks, Alpha Centauri is twenty-five billion miles away!"

"Precisely so, doctor—quite a large distance compared to a mere five thousand million miles radius of our own solar system. Nevertheless, Alpha of the Centauri is to be our future sun. Oh, I see what is troubling you! The time it would take to get there."

"Just that! That is why the idea is so utterly fantastic!"

THE GIRL tossed away her cigarette, considered in silence for a while, then abruptly plunged into the subject with a technical, dynamic gusto that almost swept the steady, mathematical doctor off his feet. In a moment she changed from a charming hostess into a deliberating, analytical scientist.

"I'll outline the entire thing to you, doctor. It is only fair you should know how this thing is to be done. The Earth is chained to the Sun by gravitation—that is an elementary fact. Gravitation, though I've probably no need to explain it to you, is caused by every particle of matter attracting every other particle with a force exerted along the

straight line joining the particles. This force is directly proportional to the product of the respective masses of the particles, and inversely proportional to the square of the distance between their centers of gravity. Now, our Sun happens to be our particular master gravitation, but my father proved that by releasing between our Earth and the Sun a force contrary to gravitational pull—an annihilator, as the machine is called—it is possible to stop all gravity existing between Sun and Earth. Is that clear?"

"The whole thing's a lunatic's conception," Jerry remarked gruffly. "Science may be a good thing in some ways, but in others it's infernally dangerous for——"

"I was not addressing my remarks to you, Mr. Morgan, but to somebody who possesses, I hope, the imagination to understand them. Dr. Morgan, do you follow me?"

He nodded slowly, chin in hand. "Yes. But the stoppage of gravitation will cause Earth to fly off into space."

"I grant you that it would fly off if all gravitation were instantly stopped. But in this case only a slight amount of gravitation will be cut off at first—sufficient to let Earth move slowly at first—like a vehicle going down hill with the brake on. You see now how Earth will be cut off from the Sun's attraction. Well, the current of the annihilator is so arranged that the gravitation is automatically made less and less between Earth and Sun, so timed that the gravitational pull is entirely stopped when Earth is in a favorable line with Alpha Centauri. Further, this annihilator works in such a manner that all the Earth is rendered impervious to gravitation—not just a portion of it. You see?"

Morgan nodded. "I get you so far. But in the journey through space we are liable to be struck with all manner of foreign bodies, which will damage

the Earth severely—even smash it up. The journey through the asteroidal belt, for one thing.”

“I’m coming to that,” Eunice returned, with infinite calmness. “At the first, our Earth will move around the Sun in a gradually widening orbit, as the gravity from the Sun becomes less and less. Finally Earth will cast off her moorings altogether and be a free body in the depths of space. Then—straight for Alpha Centauri! In the normal way, to reach Alpha would take us about three years, but my machinery—or rather, my father’s—will take us there in a week at the most.”

“A week?” the doctor repeated, astounded.

“Yes. Space—our particular universe, that is—is so inconceivably vast that we might well believe there is no such thing as another space beyond it. My father very much believed that there is, that our universe is only one in millions—but for the moment that is beside the point. He proved that it is possible to cover as much as fifty million light centuries in the space of a few weeks, if necessary— No, don’t interrupt me! Light is the fastest known velocity, as we recognize it, covering 186,000 miles in a second—but it would move from one point to another instantaneously, if it were not for the ether preventing it!”

“But ether is the carrier of light; without it there would be no light,” Morgan protested.

“Granted; I was merely giving an instance. Ether sets a limit on speed, even on light, whose mass is so slight as to be hardly measurable—but it is ether that causes the limit to move 186,000 miles a second. With no ether, still travel and be seen, light could reach us from the Milky Way in less than a second of time!”

“Uh-huh,” said Morgan doubtfully. “Go on, please.”

“Among the instruments here is

also an Ether-Destroyer, which projects into space, always one million miles ahead of Earth itself, an energy, which curves ether away to one side—forms, as it were, a tunnel, through which Earth in her flight will travel. I would mention, though, that a tiny line of ether is retained, so that gravitative forces can move along it to pull Earth. Otherwise there would be no medium for gravity to pull along. Up this almost de-etherized tunnel will hurtle Earth, unhampered by the retarding force of complete ether—a free body able to move at an unthinkable velocity, so fast that the distance to Alpha Centauri will be made in roughly seven terrestrial days.”

“But what of the planets and stars in the way of this Ether-Destroyer?” Morgan asked.

“They will be destroyed, or else drop beyond the range of the de-etherized channel. For where there is no ether there is no support, except gravitational pull, which in itself is not strong enough. The Ether-Destroyer will accomplish many things—it will protect Earth from foreign bodies, keep it in a safe tunnel until the trip is ended, and also——”

“But, my dear young woman, Earth itself will collapse in a de-etherized tunnel!”

“Not at all. I come now to the crowning achievement. Alpha Centauri exerts its gravitation across space, but so great is his distance the effect is scarcely felt on Earth here. Again amongst these instruments is father’s Gravity-Tripler, one of his greatest masterpieces. It connects up to a massive battery on the roof of this laboratory, which in turn is connected to a horseshoe magnet. Its purpose is to draw the faint gravitational pulls emanating from any stellar body—even stars—and emit into that faint gravitational pull a band of high powered energy which has the effect of tripling

the actual gravitation emitted from that body. Thus, this magnet being tuned exactly on Alpha Centauri, will triple its mass gravitation, which, as equations have shown, will be strong enough to give Earth her initial pull-off once the Sun's gravitation has been counteracted.

"Then we go through the de-etherized channel, the power of Alpha becoming more powerful with every million miles we cover until, when we are near enough, we cut off his attraction and restore gravitation to Earth by removing the Ether-Destroyer and also cutting off the power of the gravitation neutralizers. Ether will immediately cause a resistance to brake our speed—applied carefully to prevent destruction, of course. In this way, using one or the other, we can mould Earth into an orbit, fixing her firmly so that she revolves round Alpha at a distance compatible with the extra size of that star. To be only our usual distance of 93,000,000 miles would roast us to cinders. That part we'll have to work out—Space is free enough to permit us to circle around Alpha in an elongated orbit without encountering any unwanted planets— Now, doctor, do you see how it will be done?"

"It's wonderful—the work of a genius," Morgan assented quietly. "And yet, there are still some things that puzzle me—little trivial things, yet vital enough where the safety of Earth itself is concerned. For instance, how will Earth stand this trip through a de-etherized void? Surely it will kill everybody? The awful speed—and the cold."

"EVERYTHING has been thought out—years of study and work," Eunice replied very quietly. "Ordinarily, Earth's atmosphere would be torn off in the first thousand miles at such a stupendous velocity; landscapes would collapse, seas spew forth into infinity.

Humanity would lie driven into the hardest rocks by its own weight with the awful acceleration. Therefore, before the removal takes place, the entire atmospheric envelope will be impregnated with rods of force—a fairly simple matter, the idea being occasioned by my father watching a thunderstorm one summer night.

"There exists always in the upper atmosphere an encircling band of electricity, and electricity with the proper conductors can always be brought to Earth. So, the plan is to impregnate the entire atmospheric envelope, all over the world, with a special chemical, which will rapidly settle to Earth—will cover Earth and sea in a fine cloud of gray and glittering dust. That is what is called Earthing-dust. Once all this has settled—it will be distributed by high power wind machines—a current will be released from this laboratory into the air, which will instantly cause the electrical bands in the stratosphere to shoot the Earthing-dust on the ground. This will take the form of rods of fire, or force, at intervals of three hundred miles, according to calculation. Thus, atmosphere will be held to Earth by electrical power, as securely as an umbrella is held to the stick by the ribs. The chemical has an indefinite life of something like a year—quite long enough for us, anyhow. That's the atmosphere problem solved."

The girl paused for a moment in her amazing exposition of a scientific miracle, then resumed in the same calm, but completely convincing voice.

"Lastly, to overcome the effects of acceleration, and to make doubly sure of Earth itself being safe, I shall use another counteracter, working in a slightly different manner to the annihilator in stopping gravitation, but on the same principle. This particular counteracter will set all the effects of surplus inertia and mass phenomenon at zero, and, by gently grading it, it will

be possible to maintain the gravitation at a normal level by getting rid of the surplus mass as it accrues. Were you to use a small model of the counteracter in an elevator, you would find that that unpleasant sensation of sinking in the stomach would be entirely absent. So, you see, the journey through the void, terrific and mighty though it is, will present no actual harm. Mankind will be advised of what is to come, and make the necessary preparations underground, for warmth, and so forth. In particular will people have to keep clear of the rods of force from the atmosphere binding machines—I think that's all."

"Believe me, it's quite enough!" Morgan declared fervently. "Of all the things I ever heard of, it's the most stupendous! And your memory, Eunice—you don't mind my calling you that, do you—is little short of astounding! What do you say, Jerry?"

"All right if it works," Jerry grunted, lighting a cigarette. "Personally, I wouldn't give a woman credit for being able to do it."

"It is for that very reason that I sought your aid, doctor," the girl said quietly. "I know the world would doubt me if I explained these theories, despite the great name of my father. On the other hand, the world believes in you. I want you to explain it all—make the preparations. They will listen. Once that is done, I can handle the rest myself. Will you do that for me? They won't listen to me because I am a woman!"

The doctor nodded slowly. "I understand, Eunice," he answered, his voice understandingly sympathetic. "The world will listen to me, never fear. It will have to!"

THE WORLD did listen to the great Dr. John Morgan, when he again spoke on the radio from London—making a special journey for the purpose. As a

AST—6

result all normal ways of living were abandoned and Mankind turned itself to the greatest removal in history. The Earth was to have a fresh address, and forsake the electrically ruined space in which it at present existed.

A month passed, and in that time more violent storms wreaked their havoc and destruction, providing the spur to man's activities. The Earthing-dust was duly disseminated to every quarter of the globe; suitable dwellings for the transit were provided in special, comparatively safe regions, and everything was metaphorically packed ready for the terrific, awe-inspiring journey.

So, nearly six weeks later, the Earth was ready, and in the giant laboratory in Scotland one slim girl had beneath her tapering fingers the destiny of a planet and all it contained—a task which seemed to occasion no trace of fear in her majestic bearing.

The time fixed for the first preliminaries—the neutralizing of gravitation from the Sun, was fixed for 10 a. m. Greenwich Mean Time—on the 1st of December, 1942.

In the laboratory, at this hour, tense and keen, stood the girl and the doctor. In the background, idly lounging, was the boorish Jerry, vaguely afraid, yet too cowardly to admit it. In regions farther away were the unmoved housekeeper and her husband, not in the least interested in these scientific miracles, caring only for their particular domestic work.

"Everything all right, Eunice?" the doctor asked presently.

"Yes." The girl nodded her black head, then a little ghost of a frown passed over her clear, intelligent face. "Er—not altogether," she amended. "I've discovered what may be cheap workmanship in one of the machines—the Gravity-Tripler, to be exact. Somebody swindled father when he had that machine built, I'm sure. The steel is mottled in some odd way, as though it

has a flaw in it. There's no time now to get it altered, so we'll just have to trust to luck that everything will be in order——"

She paused at that, hand on the mighty lever of the gravitation neutralizer, her blue eyes on the jerking finger of the chronometer above her head.

"Time!" she said suddenly, in a sharp staccato voice. "O. K., doctor!"

Under the weight of her own body and that of the powerful doctor, the vast gravity-neutralizing lever moved in its broad slot, clicking suggestively in its sprocket catches as it moved. Tubes of pink light glowed during this procedure; circular plates of perfectly balanced symmetry revolved; spark gaps flashed and faded rhythmically; deep and profound sound claimed the concrete floor for its own, as the almost incredible machinery for releasing a planet from gravitation began to function.

At last the lever had reached the first notch, and at that the two desisted. For a time they stood panting; recovering their breath and looking at each other.

"I calculate that seven hours will free us," the girl said. "In that time, the lever will move over of its own accord, being automatic. In any case, so soon as that lever is right over we shall know two things—Earth will be free, and in a dead line, allowing for cosmic trajectory, with Alpha Centauri—— Now for the Earthing-dust current."

She moved over to the mammoth switchboard and flung in the necessary pole switches. Instantly that wave of electrical force must have encircled the Earth, causing the Earthing-dust, in which the world was powdered, to have immediate effect.

From the window, the three—for Jerry bestirred himself to look—were treated to the astounding vision of what appeared to be mammoth pillars of pale blue flame at regular, long distant intervals. Sky high pillars of electric fire,

steady and unwavering, blazing sentinels of atmospheric safety, visible even in the sunlight which was steadily shining on a seemingly deserted world.

"Well, so far so good," said the doctor at last. "What's next, Eunice?"

"Just a matter of waiting and watching," she answered quietly. "We've done all we can for the time being——"

III.

THE PASSAGE of seven hours proved the girl's figures were correct, and in that time the gravitational attraction between Earth and Sun had gradually weakened, and Earth itself moved, in consequence, farther away from the parent luminary.

All possible effects from this mad swerving were negated by Eunice's remarkable inertia and mass counteracter, which set the ill effects of tottering equilibrium at zero. Except for a slight inner sinking feeling, which it seemed impossible to avoid, those within the laboratory detected no unpleasantness.

At precisely five in the afternoon—by time only, for the Sun had performed strange risings and settings during the Earth's crazy behavior—the gravity neutralizer lever had moved over to its farthest notch, and somewhere an alarm bell rang. This was the signal for instant activity on the part of Eunice, and after some preliminary calculations she tugged over, with Morgan's help, the compound switches of the Ether-Destroyer and Gravity-Tripler, both of them timed and tested to be in absolute alignment with the nearest star.

That which followed was incredible and astounding!

The laboratory became a mass of dinning sound; terrifying bands of electricity shot from hitherto unnoticed contacts and hurled themselves upon countless magnetic poles. Roaring, crackling row, akin to some superbonfire. The

place was ablaze with blue light, and the stench of sulphur and ozone rushed to the nostrils of the three in the mighty room.

Perspiration suddenly wetting her face with anxiety, Eunice hung on desperately to the massive compound switch, darting glances at her meters, and then staring through the window.

A terrific falling sensation came suddenly—and went. Earth seemed to sway crazily as though it were going to turn upside down. Followed a sense of dizzying, almost heart-stopping speed—— Then Morgan uttered a shout and pointed through the window.

"The stars!" he gasped huskily. "Look at the stars! Look!"

Open-mouthed, dazed, the three stared out, even Jerry forgetting everything in the intensity of that moment and——

The clouds that had been in the sky had vanished now, and far above, at the summit of the nearest blazing rod of force, was a curious, gyrating sky. As though Earth were standing still, and the heavens were turning somersaults! Speed—infinite and colossal!

Speed—— Speed!

It was curious to note that only on two sides of the sky were the whirling stars visible. Directly in the center there were apparently no stars, for the simple reason that the destruction, or pushing aside, of ether for one million miles ahead, had also destroyed the medium for carrying light waves. Alpha Centauri, the Earth's new sun-to-be, was consequently invisible, although its magnetic pull, tripled by the amazing instruments, was even now tearing Earth through a de-etherized channel at a mounting speed of millions of miles to the second.

"We've done it! We've done it!" Eunice reiterated, in heartfelt gratitude. "Oh, that father could have lived to see this moment! Heaven rest his soul—— In a week, if all goes well,

we'll reach our new home, and everything will be in order. Twenty-five billion miles in seven earthly days! That's moving, doctor!"

"True enough," Morgan assented. "Which reminds me, what do you think would happen to the rest of the solar system when we departed?"

The girl shrugged. "Isn't it obvious? Every one of the planets would no doubt be destroyed by the terrific gravitational upheaval—fall into the Sun or fly off into outer space. Only the Sun would remain standing because of its great mass, and even he would shift slightly from his normal position with no planets to hold him steady." She paused and smiled faintly. "That troublesome old Sun! If only it hadn't emitted electric discharges there would have been no need for all this!"

"I admit all this is very wonderful, and very clever," remarked Jerry condescendingly, strolling over with an astronomical textbook in his hand, "but it strikes me you have made an error in your judgment, Miss Banks. Alpha Centauri is not the nearest star."

The girl returned the younger man's cynical stare with a direct look of her sapphire eyes.

"Have you nothing better to do, Mr. Morgan, than find fault?" she inquired acidly. "I am referring to stars of any standing. You, no doubt, are referring to Proxima Centauri, which is nearer Earth than Alpha—a star of the 13th magnitude, in the same region as Alpha, and possessing a parallax of 0.79 seconds of arc?"

"Yes," Jerry admitted, and his cynical expression changed to one of amazement. A faintly sheepish grin came to his face. "I'm—I'm sorry, Eunice," he said in a low voice. "You've taught me a lesson. Forgive me, will you?"

"Surely, if it makes for peace," the girl retorted. "To answer your question in full, Mr. Morgan, I chose Alpha instead of Proxima because

Alpha is a star of the 1st magnitude, with a parallax of three quarters of a second of arc. What good would Proxima be, with a light only a two-thousandth part of that of our own Sun? We'd freeze to death!"

"Right enough," Jerry admitted. "You know your stuff, Eunice. Forget my rudeness; you're a woman in millions."

"Thanks," came the girl's indifferent reply, and she turned aside.

SILENCE FELL again, and the three returned to the view at the window—a view of moving stars, and shifting constellations. Once clear of what had been the nearer reaches of the solar system, space seemed limitless, the stars and suns—glittering sentinels of Eternity—studded the infinite. But for the de-etherized path, they would probably have exerted strange and devastating influences; as it was, Earth flew on, unmolested and undisturbed.

So days passed on—days in name only—for the Earth was wrapped in perpetual night and starshine. A world of atmosphere, certainly, but frozen from end to end with the removal from the Sun. Mankind was safe underground from the ruthless cold, and those in the laboratory experienced no discomfort with its vacuum-lined walls and central heating.

On what was calculated to be the sixth day, Eunice spent the time going over her figures. She finally arrived at the conclusion that sixteen or seventeen hours would be required to bring them to the region of Alpha Centauri.

"Then we set about arranging our orbit," she said, looking up at the doctor. "To do that will not be difficult; it is all planned. At the moment we are rather hampered by the light being blocked from our sun-to-be. However, if——"

She stopped short and looked up with a start, alert and rigid, as her quick ears

detected an alien sound in the formerly steady beating of the magnetic engines. Beyond question, the rhythm was intermittent now, whereas it had formerly been constant.

"Something wrong!" she said shortly, jumping to her feet—and in two strides had reached the main engines upon which the Earth's safety depended. Her face clouded as she came at last to the generators of the Gravity-Tripler.

"What's the matter?" asked the doctor anxiously.

"Just as I thought!" the girl answered grimly, compressing her lips. "That faulty workmanship I told you about. A defect in the Gravity-Tripler——"

"Heh, Eunice—look out!" bawled Jerry suddenly, standing just behind the girl; and before she could realize what was transpiring Jerry had clutched her round the waist and flung her face down on the floor. She gasped with the sudden concussion, screwed one eye around, and was just in time to see the doctor throw himself flat.

Not a moment later the Tripler-generator burst itself asunder in a mass of white-hot metal! Bars of steel, half-molten, hurtled through the air; came a terrific explosion and a flash of blue light. With a whining shriek the other engines essential to the maintenance of the Tripler came to a standstill—became mute, surrounded by acrid exhaust fumes.

"Great heavens!" Eunice panted, staggering to her feet again. "The Tripler has destroyed itself! Run itself to pieces! Don't you understand?" she almost shouted, becoming faintly hysterical. "The link between Earth and Alpha is broken; the magnetism is no longer working!" She stopped, breathing hard. "That means Earth is a free body, without any gravitational power whatsoever unless I choose to exert it—just hurtling through space with prodigious velocity, a velocity so terrific that Earth can't fall down out of the

de-etherized channel— We can't anchor Alpha Centauri!"

"No— We can't!" Morgan said dazedly.

"It means," the girl went on, steadying herself, "that our frightful momentum, which seems of some unexplainable reason to have increased, will fling us into the uttermost regions of utterly unknown space! I dare not restore gravitation, even slightly, for fear of ripping Earth asunder with the sudden pull. Without the gravitation, the magnetism, of Alpha to aid us, we're helpless! We're on a wandering planet, lost in space!"

"Can't you repair the thing?" asked Jerry at last.

"Repair it?" the girl turned to him. "No, Jerry, it can't be done. The thing is in pieces. The desire for economy in man; the desire for a little more ill-gotten money, has probably sealed the doom of an entire planet! Fools! Crass, little-minded fools!"

Eunice breathed harder for a moment; then her expression softened a little. She crossed to Jerry's side.

"Thanks a lot, Jerry," she said simply. "You saved my life a moment ago, flinging me down like you did. I appreciate it."

Jerry shrugged. "I only did what anybody would have done. The point at issue is, what are we going to do now?"

The girl made no answer to that. Silently she sat down at the table and commenced to figure the position out. Her final conclusions were interesting, but cheerless.

"Our momentum, vastly increased as it is, and since we're in a de-etherized channel, has brought about perpetual motion," she announced. "In its way, that is a triumph. You see, there being no resistance or friction whatsoever, with ether removed, perpetual motion goes on. We shall continue to hurtle through space at our present mind-

numbing speed. Two things only can stop us. We can remove the Ether-Destroyer and bring about a resistance that will probably give us such a jolt as to destroy us; or we can try and restore gravitation by using the pull of the stars, which might rip Earth in pieces. Either of the two alternatives, or else —" She sat in grim silence, her eyes on the sheet of figures.

"Or else what?" Jerry asked presently, as Dr. Morgan said nothing.

"Or else we go on—to the end of space! Granting there is an end, that is. The distance of our space, according to my father's theory, is about one hundred and twenty million light years. So, there are three courses, and only the last one offers a chance of survival. You see, it is possible that at the outermost reaches of our Universe we may have such spacing out of stars and planets—if any—that we can try using a little gravitation breaking without serious consequences, such as would happen from a nearer body. To do it here would be suicidal, hemmed in as we are by vast gravitational fields. It is worth going straight on, I think. Who knows but what we might even find another Universe? My father was confident that one existed—as you remember in his treatise upon the subject, Dr. Morgan."

Morgan stroked his chin, his penchant when thinking hard.

"There seems to be no other course," he agreed finally. "We can only hope that the rest of the machinery holds together. If it doesn't, our efforts—or at least yours, Eunice—will end in the most frightful debacle ever conceived."

FORTUNATELY, the remaining machinery withstood the terrific strain placed upon it, and days and nights, in hours, crawled by, as Earth, a free body, hurtled onward at a steady, never-mounting, never-decreasing speed.

The two great hemispheres of sky,

plainly visible despite the atmospheric rods of force, which still blazed steadily, changed incredibly with the passage of time. According to Eunice, Alpha Centauri had been passed, and Earth was already in the region of that titanic, galaxial mass—the Milky Way.

Somewhere in the depths of space must be lying between Antares and Betelgeuse, the low temperature stars of Arcturus and Capella, and the fiery blue-white Sirius——

The three in the laboratory, dazed by the journey, could only grasp at the threads of infinity and find their minds completely incapable of understanding the immensity, the colossal and awe-inspiring majesty of it all. Distance, speed and heat—these three factors soared to such unimaginable dimensions that their concepts staggered on the threshold of reason when they tried to form new and definable theories. They were forced to admit the supernal power of Elohim, that could keep all this ordered enormity in mathematical and unvarying alignment——

So onward—and ever onward—flew Earth, past even the incomprehensibilities of the Milky Way, hurtling through vast island universes, untouched and unscathed. She flew past colossal and awe-inspiring suns, so hot and titanic that they melted the frozen snow on Earth as she passed on her way, flooding her, according to the particular light of these suns, in green, pink and blue; washing her face in the most awful yet indescribably beautiful glory——

Farther onward, still, winging her way with stupendous velocity through bottomless space, the Milky Way behind her—a haze of suns, stars, planets, and blazing, pointless nebulae, stretched on the blackness of enigmatical, seemingly everlasting, space.

For was it everlasting space?

This thought grew on Eunice and Dr. Morgan as time passed—time in which they ate and slept but little. They

knew they had reached the outermost boundaries of the known Universe. If the computations of the late Sir Rodney Banks were correct, the terrific journey, across the gulf was nearing its end. Eunice's figures alone showed that nearly one hundred and twenty million light years had been covered, yet still space showed no signs of ending. Galaxies, stars and suns hung almost stationary now, due to their vast distance away. If there was an end to space, it was still a long way off.

So it seemed, at least, until presently a change became manifest. The stars and suns that had hung ahead were reached—and passed. Everywhere the void seemed dark and starless—utterly black and oppressive. Vastly empty and friendless—the incarnation of all that was cold and inimical.

“Just look at that!” Dr. Morgan said, after seemingly interminable hours had passed. “A dead star—mighty and colossal! As though it were an outpost of infinity.”

Eunice nodded, and, turning to her various instruments, presently arranged a star-plate camera in position. As Earth swept close past it the camera shutter clicked, leaving on the scale drawn plate within, an image of the extinct monster.

“What’s that for?” Morgan inquired curiously, and the girl smiled faintly.

“A star of that size, even if it is dead, is worth recording,” she replied quietly. “I am a great believer in records of celestial phenomena, you know.”

And with that she pushed the camera to one side again and resumed her study of the blank reaches of infinity.

More hours—more millions of light years; more continued, unswerving flight. Then——

Three faces pressed closely against the laboratory window, agitated cuffs wiped away steam. For space was no longer black!



The floor was pitching crazily up and down. It seemed that all of a sudden Earth was flung forcibly into the unknown.

Suffusing it, as though from nowhere, was a pale but none the less noticeable, blueness! It deepened with the hours as the Earth still flew on, a tiny speck of cosmic matter in the infinite, bearing on its surface a girl whose tireless energy and fixity of pur-

pose had made the incredible journey possible.

The blue deepened until it assumed a purplish shade; then it commenced to lighten again. With surprising rapidity it changed to the color of an electric spark—bright, sapphire blue.

It seemed that the black suddenly interwove with the blue; infinities were running into each other like different colored inks!

"Great heavens!" Dr. Morgan jerked out, standing transfixed. "We're leaving our own space and entering another one! Your father was right, Eunice—there is another Universe——"

He stopped. The floor was pitching crazily up and down. It seemed that of a sudden the entire Earth was seized and flung forcibly into the Unknown.

The three had a last vision to a now clear blue emptiness—a mighty blue infinity as far as their eyes could see; then came a sense of intolerable pressure which forced them to their knees. They had a transient glimpse of a blinding yellow star. They were forced still lower—to their faces, flattened by unbearable, strangling pressures.

Unconsciousness swept up and claimed the three of them simultaneously.

IV.

EUNICE was the first to recover consciousness. She did so with a sense of supreme comfort—a dreamy and gradual return to things conceivable. Slowly, as her mind took a hold on the events immediately preceding her unconsciousness, she became filled with a great and tremendous wonder. Carefully she opened her eyes and peered about her, hardly daring to imagine what she might behold.

What she did behold was not particularly extraordinary. Merely the laboratory, as she had always known it. Vaguely, she had half expected to find strange and unknown creatures present; creatures gifted with uncanny mind forces and possessing almost fantastic bodies.

As it was, everything was very prosaic and mundane.

Winning from the pain of bruises, she crossed to the window and gazed out.

Her mind received a distinct jolt. The Earth was steady! Why, she had not the time then to figure out. The rods of force were still in evidence, she noticed. Overhead, the sky was a bright, unnatural blue; a yellowish gold sun hung, seemingly stationary, at the zenith, flooding the laboratory with a warm, but not uncomfortable light, through the windows. In every direction frost and snow were rapidly thawing.

"Strange!" the girl muttered at last, puzzled, pushing her hand through her thick hair. "An absolutely different space!"

Turning aside, she switched off the various engines, and for the first time in weeks the laboratory became silent. On returning to the window, she found that the doctor and Jerry had also recovered and were standing, silent and perplexed, before it.

"Well, Eunice, where are we?" Jerry inquired. "Things seem to be all right—the ice and snow are fast melting. Earth seems to be in a good spot. I—I don't like the look of the sky, though. It's queer, somehow."

"Very queer," Eunice agreed, an odd note in her voice. "Personally, I cannot understand why Earth stopped like it did and formed into an orbit all on its own, round this yellow star. You will notice that, although our atmosphere is still in order, we behold the void—the blue void—instead of the natural blue sky. The processes of diffraction, which are normal to us, are absent here. Look at those remote stars, despite the sunlight. That sun, too, has prominences. See?"

"Perhaps the atmosphere has vanished after all," Dr. Morgan remarked. "Maybe our lab is the only place left with air."

"We can soon test that," the girl answered quietly, and with firm decision crossed to the door, flung back the heavy bolts, and opened it.

Nothing happened. The air was normal. She stood on the threshold and stared away toward the Scottish hills, etched out against the blue mystery. Presently she came back into the laboratory, her brow creased in thought.

"I think I begin to understand," she said softly. "It's all a question of environment!"

"Environment?" repeated the doctor, puzzled.

"Yes; even an elementary form of relativity. Take a child from the slums—one who has grown up there—and place him in the midst of luxury and breeding whilst he is still at an impressionable age. You will find that he has enormous difficulty in adapting himself to new conditions. Everything will be different to him; quite alien to anything he's ever known or learned. Our planet is a wandering child. Whilst in its own space, in which it was born and molded, it was adapted to those particular space conditions. Here, we are in another space—so strange, so inexplicable, so far removed from everything connected with our own Universe, that every known law of science will have to undergo terrific amendment. You understand?"

"Yes," said the doctor in a hushed voice. "The—the immensity of it is appalling."

"If there are others alive, we can still learn," Eunice replied steadily. "Before long, no doubt, we'll discover why Earth halted in her headlong flight and came to such a safe anchorage without actually plunging into this Sun about which it is now gravitating. For the moment, we will see if the radio works."

She crossed to the massive banks of radio machinery, and made a swift survey of the contacts. Then, throwing in the transmitting power, she turned to the microphone, clamping headphones over her ears at the same time. For quite a while she labored resolutely with the apparatus, but no message reached

her. Only violent cracklings of terrific static, that seemed as though it would split her eardrums with its intensity.

"No good," she grunted, putting the phones down at last and switching off. "There is something very queer about this atmosphere—or else in the space outside it. I never heard such static and atmospherics." She rubbed her ears ruefully and smiled faintly. "Only one thing else we can do, and that is explore," she commented. "Let's prepare."

And, with the aid of the still imperturbable housekeeper and her husband, preparations were rapidly made for an excursion.

AFTER PURSUING the usual ramifications, the exploration trip eventually turned into a kind of resurrecting party.

Humans, frightened but alive, were literally dug out of their underground hives, and with the passing days the cities of the world, unharmed thanks to the inertia counteracter, began to take on a semblance of their normal activity.

Eunice—for Dr. Morgan had publicly announced to the world the girl's amazing powers—was hailed as a newly appointed world-queen, and under her directions, and the doctor's, order began to grow out of the chaos, and mankind turned to the business of adapting itself to new conditions and experimenting with new and hitherto unknown forces.

One thing became obvious as time passed, and that was that Earth—for a reason left for Eunice to explain later—was spinning on its axis with a revolution of 22 hours, 4 minutes and 2 seconds—and that its distance from the newly found sun was approximately 120,000,000 miles. Its orbit, too, was very similar to the one it had possessed round the natural Sun, being elongated—and hence would produce seasons. The temperature by day was an unvary-

ing 80° in the shade, and the season was winter. So much the experts discovered about Earth's new abode in the blue infinity.

Tests were made of the remarkable atmosphere. It was found to be impregnated—probably from the new sun—with a type of hitherto utterly unknown force or energy, which destroyed all the laws of diffraction and also negated clouds, making it possible to see the blue void itself. This discovery also brought the problem of providing rain, but subsequently it was solved by projecting ice-cold beams into the sky, which caused a dewy precipitation to fall on Earth from the artificial clouds. Again, as before, the why and wherefore was left to Eunice's untiring mind.

The problem of rain solved, Dr. Morgan and Jerry—who had actually arisen far enough out of himself to help the girl all he could—began to feel more comfortable. Earth would not parch, anyway. The next main problem was to discover why radio was so poor, and the cause of the terrific static. This problem, and others, occupied Eunice completely, so Dr. Morgan and Jerry took it upon themselves to attend to more trivial matters in London—to which they had all moved when taking over world control. Eunice's amazing laboratory had also been transferred, and enlarged into an even more replete place, with newly equipped engines of the finest workmanship.

So, finding life comparatively normal despite the changed conditions, man—adaptable animal that he is—began to feel secure again and stolidly accustomed himself to the new conditions, quite unable to conjecture how far away he was from his own normal, black Universe—and equally unable to conjecture the future—

RETURNING one day to the great laboratory in Mayfair, Dr. Morgan and Jerry were surprised to discover Eunice

staring bleakly before her, hand holding pencil over her notes, the most hopeless expression on her visage the two had ever seen on any woman's face.

"Why, Eunice, what's the matter?" asked the doctor in concern. "Anything wrong?"

At that the girl started, laid down her pencil, and looked up. "Perhaps," she said enigmatically. "I can't be sure yet, doctor. I've solved everything, by the way. You might like to hear my conclusions?"

"I certainly would! Let me have them."

"Very well. We're in a Universe that possesses truly remarkable qualities. For one thing it possesses no gravitation—at least, not in the form that we recognize as gravitation. But what it does possess—what each star in this blue universe possesses—is an outward radiation of force, which surrounds each star like an aura."

"Aura?" Morgan repeated.

"Yes. Imagine the star first, then imagine about nine elliptical invisible rings surrounding it, at varying distances, the outermost ring being a truly gigantic curve. These rings never vary; they are elliptical bands of force, and in these bands of force move the planets of the parent sun or star. In our own Universe, we explain gravitation as being composed of orbits; here, it is different. The orbits are actually made by force bands, of the same force as the star in question itself, of course. You see? No gravitation—just force. That is why our Earth found an orbit so comfortably; it was trapped in one of these rings of force—the outermost, or ninth, but was caught slantwise. This accomplished two things. It broke the direct impact, and also gave Earth a spin, which she retained—that of 22 hours 4 minutes 2 seconds."

"Most interesting," Morgan commented. "It certainly upsets all the laws of gravitation and mass."

"How do you explain the color of this blue infinity?" Jerry inquired.

"Fairly simply, Jerry. This Universe is enormously crowded with stars, galaxies, nebulae, and so forth—probably crowded millions of times more than our own Universe. In our own Universe there are roughly 500,000,000 stars; there cannot be more, because our space is black. If our space were crowded, it would be hazily bright, owing to the terrific quantity of light waves in the gulf. Therefore, here, we may assume that this infinity is blue because of a vast number of stars all giving off light, which, whilst not being powerful enough to cause actual brightness, gives nevertheless a pale blue color. You understand?"

"Yes," Morgan returned. "And whilst you're at it, Eunice, there is one more question. How is it that the projection of cold beams into our sky causes rain?"

"I can only assume that the upper air must be very hot—the condensation of heat and cold begets clouds, which precipitate moisture. One thing else I've also solved, and that is the reason for poor radio efforts. It's caused by the terrific electric charges from this force orbit we're in."

The girl fell silent at that, still gazing worriedly into space.

"Well, surely there is nothing to be despondent about?" Morgan inquired in surprise.

"On the contrary, doctor, there is much to be despondent about. For one thing, this sun possesses little or no ultraviolet radiations. That will, in the end, mean the death of our trees, our vegetation, and our crops. There is one other thing, too—and it is that which is so alarming me. I can only hope my figures are incorrect, otherwise it will mean that Earth has jumped out of the frying pan into the fire—— To be very brief, Earth will approach so close to this sun in time that her surface, and

everybody upon it, will be burned to a cinder!"

"What!" Morgan gasped in horror. "Eunice, you cannot mean——"

"I'm afraid I do," she interposed gloomily. "Civilization is picking up—but once again on the threshold of destruction. That is, if equations and celestial dynamics tell the truth! You see, these bands of force—orbital frequencies, as I call them—move elliptically around this sun. At the moment, we are millions of miles away from the closest approach, but within say, eight Earthly months, we shall be at the perihelion, and, as my calculations show this sun to be something like 200,000 times hotter than our own Sun, despite our great distance from it, we won't stand a chance. We'll be bleached to ashes. Even now, the winter season, it is uncomfortably hot. In the summer the temperature will rise to terrific heights. Mankind will wilt—rot in a torrid sepulcher. Oh, if only these bands of force were perfect circles! We'd be safe then. But they're not, so there we are. You see what I mean, doctor?"

"Only too clearly," Morgan nodded grimly; then more brightly, "but perhaps your figures are incorrect. After all, you're not infallible."

"I'll certainly have them checked," the girl replied. "I pray to heaven that I have made a blunder—the fate of the human race depends upon it——"

She ceased talking and sank her chin on her cupped hand.

"Why does Destiny choose a woman to perform a mighty feat, to dabble with the tremendous laws of the cosmos, and then fling defeat at her the moment victory is attained?" she murmured. "Destiny—strange and inscrutable. Merciless slayer of ideals and dreams——"

THE checking of Eunice's figures, by the most efficient mathematicians in the world, proved that she was only too correct, and the knowledge plunged her

into the blackest depression. Earth had eight months to live—no more. In that time, traveling in its force orbit, it would pass so close to the parent star or sun that all life on Earth would wilt under the avalanche of frightful heat. Day by day, even now, the temperature was rising. Mankind sweltered under torrid and pitiless rays; even the artificial rain failed to improve matters, for as fast as it fell it evaporated into steam as it touched the Earth's parched and blistered surface.

With the unreasoning vindictiveness of the animal, startled humanity turned on the hapless Eunice *en masse*. Just like a woman! Ripped Earth from its natural place, where it might have stood a chance—though every astronomer on earth had sworn there was not a vestige of one!—and plunged it into an even worse dilemma.

That the courageous and determined girl had sought to save her fellow beings; had flogged her body and mind over colossal obstacles at which many an iron man would have hesitated, meant nothing. She was a fool—an empty-headed fool, who had dabbled in things too vast, and therefore was bringing about the doom of the world.

Indeed, so incensed did the lower classes become, that action was decided upon. The move would probably have resulted in the lynching of the girl and the destruction of the magnificent laboratory, had not the army and police taken action and protected the girl's every move.

She herself, treading in the ashes of superb achievement, spent day and night struggling with the problem. Trained astronomers, electricians, mathematicians, scientists—all of them were present in the laboratory, trying to aid her—checking, computing, planning, all of them, at best, little better than school-children, owing to their absolute ignorance of the laws relating to this new universe. Every ordinary law was

slightly different, which, in the aggregate, produced a terrific discrepancy.

Eunice herself, weary and despondent, but still vainly trying to think of a solution, sat at the broad table in the center of the laboratory, her head in her hands, elbows on table. By her side sat Morgan and Jerry, both concerned yet helpless.

"There must be a way!" she exclaimed at last, springing to her feet and bringing her fist down emphatically on the table. "Dr. Morgan, how far are we from the known boundary of our own Universe?"

"Eight million miles," he answered gloomily. "Why?"

"I was just thinking that— Our ether—our void—is electromagnetic. Would it be possible, do you think, to construct enormous electromagnets on Earth, so made that when the power is passed through them, the electromagnetic properties of our own ether would respond, and so drag Earth toward it? Into it?"

The faces of the assembled scientists brightened at that; their eyes swung to the girl.

"Don't you see?" she went on eagerly. "Drag us clear of this orbit altogether! Back into our own Universe. We have the necessary apparatus for protecting Earth. Once we get back into our own void, we can choose a suitable star and gravitate around it—unless a better plan occurs to us."

"It's possible that it might work, mainly because there is no actual gravitational pull in this blue space," Morgan replied enthusiastically. "Since everything here is composed of ellipses of force, it will be the power of ether versus this force. I'll work it out as near as I can, Eunice, and report the results to you."

"Do. I'm going to get some rest. I've not had a scrap of sleep for five nights."

TOWARD SUNDOWN the same day Eunice sat listening attentively to the brilliant Morgan as he elucidated his conclusions on her theory.

"Your idea is certainly practicable, Eunice," he concluded, "but it is essential, I would point out, to take into account the possibility of an expanding, gaseous Universe, propounded originally by Einstein—and later enlarged upon by Herminof of Vienna. Herminof avowed that our Universe was finite—being, in fact, a titantic electromagnetic globe. That fact we have proved to be correct in our own adventure. The other theory of Herminof is that this outer crust, or curve, is also elastic in nature; is capable of expanding and contracting under gravitational pulls. Now here is the point—

"If our Universe curve is elastic, it is easy to see why Nature has provided here a space which is gravitationless, and instead provided force. For, if gravitational powers were present, it would pull on and distort the curve of our Universe; there would be no line of demarcation between this Universe and our own. That explains away the absence of gravitation here. Therefore, the only thing that may upset the practicable demonstration of your theory is that if ether is elastic, we shall only pull the electromagnetism toward us, instead of Earth to it. My figures are not capable of checking up on that contingency."

"Either, then, we prove the theory of an elastic-edged Universe, or save Earth?" the girl asked with an ironical smile. "I prefer the latter, doctor. We want action now, or death will overtake us. Give instructions right away for electromagnets to be set up, capable of harnessing ether across eight million miles. We can't do more."

"Right, Eunice—I'll see to it."

The doctor departed, and the girl relaxed again into her chair, her bright blue eyes fixed upon the window, and

the star and sunset beyond. The absence of a roseate flush worried her; everything was so unearthly and strange. She smiled faintly at a sudden remembrance of a blue sky, green fields, billowing cumulus clouds and a summer sun—

Odd little facets of a past adventure on a picnic—of mad scampers from an intrusive cow— Happy joys, gone forever; lost now in the welter of scientific achievement in which she existed. She sighed deeply, wondering what it would be like to be a child again—then suddenly her eyes, which had been closed during these reflections, opened once more at a light touch on her arm.

"Why, Jerry!" she exclaimed in some surprise. "What brings you here?"

The young man's face was more earnest than she had ever seen it.

"Eunice, for the first time in all these months I'm able to have a moment with you alone," he said, half hesitantly. "I—I want you to know that I'm deeply sorry for all I said when I first met you. You're wonderful, Eunice!"

"Am I?" She studied his face in faintly amused silence for a moment. "Why do you tell me all this, Jerry? Come on, what's in your mind?"

"Oh, nothing, except—except that I want you to know I love you."

"Well, that's very touching, Jerry, but I'm afraid I've no time for love. My work is carved amongst the stars and untouchable things, not amongst mortals— Thanks, though, for the compliment. I—oh, say no more, Jerry! Please!"

The young man shrugged. "All right, if that's how you feel. But you won't change my feelings toward you. One day I'll ask you again, and then perhaps—"

The girl screwed her head around, a laugh on her lips.

"Good heavens, Jerry, are you asking me to marry you?" she asked, with her customary blunt directness.

"Yes. I somehow didn't dare ask outright. You're not like other women I've known——"

"No, and for that very reason I must refuse you," Eunice returned slowly. "Don't take it to heart; I'm just—just different!"

"I am not easily beaten," Jerry said quietly, and with that he moodily departed.

"Jerry——" Eunice murmured, relaxing again. "Strange indeed——"

Even as she made the observation, her head nodded forward on her chest, and in another minute she had dropped into a heavy sleep—a crouched, still figure in red velvet, girlish and slim—yet the conqueror of universes.

V.

A MONTH of the most grueling toil Humanity had ever known followed Eunice's decision to build ether magnets. In all, there were four, two on each side of the Earth, so that despite her revolution the power could be kept constant day and night.

The threats and bickerings of the earlier weeks had passed away into a sullen but harmless **resentfulness**. Thanks to the untiring diligence of police and army, the unreasonable and fractious ones were kept at bay, and work progressed steadily under a scorching, merciless sun.

By the time the magnets were complete the day temperature the world over registered was 112° F. in the shade. Yet, despite the appalling heat, a vast multitude of people collected in the region of the day-magnet situated in the country twelve miles from London, as though they expected to see something. They could not—or else would not—understand that they would behold nothing. In any case this was purely a test, and if satisfactory humanity would again be ordered underground ready for a second transit.

"I only hope it works," said Eunice worriedly, standing in the sunlight in the laboratory, before the board of magnet switches. "The next few minutes will answer everything. How are your instruments for checking the results of the magnetic pull on the ether, doctor?"

"All set, Eunice, but they won't show more than a hair degree of oscillation over 8,000,000 miles you know. Still, that will be enough for the test."

Jerry, standing by the girl's side, glanced at the electric clock on the wall.

Two minutes to 11 a. m.—two minutes between success or failure.

A solemn hush fell. Outside, London was curiously quiet and deserted. Above yawned an empty infinity of sapphire blue, studded with stars and the prominence-edged sun.

Just for a second the girl hesitated, then, as the second hand of the clock came dead in line with the figure 12, she depressed the magnet levers. Instantly the laboratory became a surging mass of sound and energy, carrying the power to the magnets twelve miles away.

Those mighty magnets, remote controlled, glowed strangely violet and emitted **such a** blistering heat that the already sun-saturated populace staggered backward in alarm. Confusion and injury strode into the midst of the panic-stricken mob. To the blue void above rose defamatory cries against the name of Eunice Banks.

Back in the laboratory, surrounded by a small army of scientists, Dr. Morgan studied his ether-recoil instrument, which would instantly show the effects of the magnetism on the 8,000,000 mile distant ether. The power had been running perhaps five minutes, when he raised his hand in a "stop" movement. Immediately the girl removed the two-pole switch from the engaging blades, and the whining ceased.

Slowly, with a face of ashen **bleakness**, Morgan went across to the girl

and stared into her faintly alarmed eyes. Her breathing came faster at his expression.

"Eunice," he said, with ominous quietness, "you've failed!"

The girl staggered back as though the doctor had slapped her in the face. She sank down weakly into a chair, every trace of color draining from her heated face.

"Failed?" she repeated dully. "You mean—you mean my theory was all wrong?"

"I would hardly say that, but the instruments show that the edge of the Universe is indeed elastic; it gives under the pull of our magnets, but Earth itself refuses to bulge in the slightest! It amounts to this: The electric orbit we're in is far and away more powerful than the ether, and infinitely more stable. Our ether is pliable, that is obvious—whereas the orbit we are in is solid and almost immovable. The only thing that can possibly save us now is something stronger, and yet just as solid, as the force orbit we're pursuing. I'm sorry, Eunice—deeply sorry. I had great hopes you would succeed."

"Well, surely, if we drag ether to us it's just as good?" Jerry remarked. "It will envelope Earth?"

"It'll envelope Earth, but it won't move Earth," Eunice replied irritably. "Oh, if only this infernal blue infinity was understandable. If we only knew what strange quality it possesses that makes light waves travel in it, and yet isn't ether! We're up against such profound mysteries——" She stopped suddenly and got decisively to her feet again. "You're right, doctor; we must have something more powerful than our force orbit. But what?"

At that, the silence of profound bafflement fell upon everybody; then suddenly Jerry's voice made itself heard.

"By all the powers, I believe I've actually got it!" he exclaimed eagerly. "What about that colossal dead star—

indeed the last star we saw in our own Universe before arriving here? You remember, Eunice? The one you photographed."

"By Jove!" Dr. Morgan whistled. "I do believe you've given a valuable suggestion, Jerry! Eunice, there's a terrific field of attraction there. According to the scale-plate, the one which you photographed of the monster, its 156,000,000 miles in diameter. Why, beside him, even mighty Arcturus, with his 62,000,000 miles diameter, would be a mere tennis ball. What a pity we can't see any signs of that dead star! What faint reflected light he possesses won't reach us because the absence of similar consistency to our own Universe in this blue infinity prevents light reaching us here from our own space. Light waves travel here on an unexplainable medium. It would take centuries to determine its qualities, just as ether has, on Earth."

"We don't need to see the giant star to make use of him," Eunice replied quickly, her mind sweeping on the up-take again. "Have detectors built as quickly as possible. A mass like that, especially being about the nearest to us in our own Universe, will soon make itself evident on detectors. Once we have charted his position, we'll make tests to discover what sort of electricity it is issuing. Just the same as I did for Alpha Centauri—except that the dead star will emit, I expect, not electricity but gravitational power. When we've determined that, we can get the Gravity-Tripler to work. Yes, it's a chance, and we'll have to work fast. It's going to be mass versus force—and mass must win!"

"Yes, mass must win!" repeated the doctor with grim determination.

CONDITIONS on Earth became somewhat hectic in the weeks that followed.

Unreasonable humanity, disheartened and embittered by the failure of the

ether magnets, and not in the least interested in the fact that the theory of an elastic-edged Universe curve had been proved, made matters extremely difficult for Eunice, the seemingly reformed Jerry, and Dr. Morgan. Still, stimulated by the girl's almost superhuman courage, the scientists toiled on.

Another month passed—and two more weeks, leaving finally only six weeks before Earth would be little better than a blistered crematorium.

In that space of time, however, the detectors had been built and revealed the attractive field of the stupendous dark star. Calculations proved that it existed some 70,000,000 miles away, to the north of the blue infinity, fortunately—for it meant that Earth could pull away from the ruthless day star and not toward or close by it in its efforts to escape.

So gigantic was the attractive field of the dead star through space that, despite the unthinkable distance between, its power caused the detector needle in its vacuum case to positively jump straight across the scale margin. In many ways that detector was a masterpiece, for it drew ether to itself at the same time as the dead star's magnetism—otherwise, in the blue Universe, the medium was not of the correct type to carry any vibrations from the black Universe beyond it.

Dr. Morgan and Eunice, noting the detector needle's behavior, became jubilant.

"Couldn't be better!" Morgan enthused. "With the Gravity-Tripler at work, we can make the mass of that star drag Earth away as easily as a crane lifting a teacup. We can succeed, Eunice. Beyond all doubt."

She nodded slowly. "Right enough," she assented, "but I'm wondering now what is going to happen when we do reach our own Universe again. If only we could find our own Sun again, I have half an idea——" She paused, her blue

eyes bright and keen as her amazing mind raced along those amazing channels of unhampered imagination for which she was so remarkable. Quite abruptly she turned back on the silent but attentive doctor.

"The cause of our solar trouble was the breakage of the corona by a wandering star, wasn't it?" she recapitulated. "That corona was composed of a force peculiar to the Sun itself. I wonder if——" She stopped again, gazing into vacancy, lost in speculation.

"Wonder what?" Morgan persuaded presently. "What amazing idea have you got now?"

Eunice did not answer the question. She seemed to arrive at a sudden decision.

"Doctor, I want you to draw off some of the force of this electric orbit we're in, and store it for me," she said briefly. "I have rather a wonderful idea, if it will work. Can you do that?"

"Surely. We have machines capable of storing up to one million volts."

"For my experiment—at first, anyhow—I shall only want a few volts. Do that for me, let me know when you have done it—and ultimately I think I'll surprise you."

"My dear girl, nothing you do can ever surprise me," the doctor answered with conviction, but his eyes were nevertheless puzzled as he watched the girl stride actively from the great laboratory.

MANKIND FORGOT its grievances a week later when it learned that tests of the dead star's mass had shown that Earth could be torn away from the inexorable orbit or its ill-found sun. This fact firmly established, orders were given for mankind to again make the necessary provisions for the journey through space, and to seek the underground dwellings from which they had not been long emerged.

The take-off was planned for No-

ember 19th, two weeks later—approximately midsummer day, despite the month—when otherwise Earth would reach perihelion and consequent disaster.

Eunice, overjoyed though she was at the news, was remarkably preoccupied with some experiment of her own—an experiment which involved such testing of electricity and releasing of the stored-up energy of which the Earth's present orbit was composed.

For three days she worked alone at her enigmatic task, not even permitting the doctor or the persistent Jerry to be present. At the end of the three days she convened a small meeting of her scientific friends in the laboratory, and made the matter clear.

"My friends," she said, with quiet impressiveness, "it will be possible for us to return to our own Sun, and have that same Sun back again, without its devastating outflows of excessive electricity! I have proved it!"

"But, Eunice—how?" Dr. Morgan demanded, amazed. "You know the Sun is a deadly electric body—that is why we moved from it. Now you actually propose returning!"

"I do—and here is my plan. Earth will return to the region of our Sun—or at least to the boundaries of what was once our solar system—because Earth possesses what we arbitrarily call lines of force—electricity. Now, those lines of force are exactly identical to those possessed also by the Sun. No other planets possess these particular force lines, nor does any other sun, because Earth is a child of the Sun, just as a child always inherits some peculiar trait or other form from its parents. Up until now, lines of force have never been utilized; we define them as poles and leave it at that. But in this instance, they are going to be the one means of us finding our own Sun again through infinite space!"

"Once we reach our own Universe,

AST-7

thanks to the dead star, we will cut off the dead star's attraction, cut off all gravitation, and once again hurtle through space as a free body in a de-etherized channel. Once we have done that—are free in space—we will have to reassemble our detectors, and, instead of making them sensitive to mass, make them sensitive to the electricity possessed by Earth itself. That will be a task of electrical analysis, but it can be done. You begin to see? The electricity possessed by Earth is also possessed by our Sun, and the detector will show it, if rendered sensitive enough, and when we get close enough. It must, of course, be made so that a thin streak of ether can reach it through our de-etherized channel, otherwise there will be no medium for the electromagnetism to move along. Then, once we have located the Sun's position, we can steer our course toward it, as a mariner follows his compass."

"Suppose any of the other planets in our system survived?" Jerry asked. "They, too, will emit the same magnetism. What then?"

"All the better; the effect will be stronger. All we want is to find our own solar system again."

"Yes, but even granting we get back, what use will it be?" demanded Morgan. "Our Sun is a dangerous and violent body—What are you driving at?"

"That brings me to my final point," the girl answered, with supreme calmness. "I have been making experiments with the electricity composing this orbit we're in, and I find that, properly controlled, it has the power of adhering to an electrical, gaseous body by reason of a tremendous electrical attraction from the body itself. A stream of this orbital-force, hurled at a circular arc—in the shape of a ball—and heated to the greatest possible maximum, formed itself into a kind of invisible globe of electricity round the electric arc—

formed, indeed, a miniature corona! The instant the formation took place, radiations of electricity from the arc, which had been affecting specially prepared instruments, ceased. As that ball and orbital force were entirely to scale, the experiments prove this.

"On the proper scale, our Sun—the natural Sun, I mean—can be surrounded by a similar electrical shield, which will forever remain round the Sun by its own electrical attraction to the Sun. Hence we provide the Sun with a new corona! It will never again break or collapse—unless some unexpected cosmic disaster causes it—for the simple reason that this orbital force has the power of converting the Sun's electricity into its own particular electronic constitution. That means, we can make our Sun safe again and stop the outflow of terrific electrical disturbances."

"Masterful! Brilliant!" breathed the doctor. "Eunice, you have accomplished an electrical miracle."

"We have merely to thank the blue infinity for providing us with the wherewithal to make our own Sun safe again," the girl answered modestly. "Figures have done the rest, and have also proved a puzzling point. Since there is no gravitation in this universe, I was baffled as to why Earth, and all these stars, retained a seeming gravity of their own. It's force again, pressing down from the surrounding force orbits, much the same as atmosphere weighs us down. That, of course, is purely a side issue, but well worth explaining."

"How do you propose going about providing our Sun with a fresh corona?" Jerry asked.

"Before we leave this Universe we shall want gigantic machines built, capable of storing millions upon millions of volts of orbital electricity. Then, once we find our way back to the region of our own Sun we will anchor

ourselves at a distance which is both safe from his disturbances, yet near enough to permit of our streams of force reaching him. Thus we supply the fresh corona, by hurling the energy of this present orbit, from a mammoth force projector, at the Sun. The formation will be almost instantaneous; no waiting or anxiety. Tests have shown that. After that, we will have to decide what to do to make up the balance in weight of the planets missing from our own solar system—but that can come later. For the time being, we know how to act."

"How to act!" Morgan echoed. "Great heavens, girl, your supreme genius has again saved the world—and, by all the powers, the world shall show its gratitude!"

THE PASSAGE of a month found Earthlings again in their underground habitations, with the exception of Eunice, Jerry and the doctor, and of course, the party of scientists. These controllers of a planet's destiny, however, were in the laboratory, lined as its smaller predecessor had been, with vacuum walls, but provided this time with special windows so that every quarter of the sky could be viewed at one time, if need be.

Outside, in every direction, lay the Earthing-dust, like a thawless frost in the torrid glare of the imminently near Sun. London rose up as a city of spangles in the golden-yellow light—London, apparently a city of the dead.

"Everything is ready, Eunice," said the doctor at last. "Time's up!"

Unhesitatingly the girl threw in the power lever of the Gravity-Tripler, and not a second later the engines roared with demoniacal fury—but this time they were built by the finest engineers in the world, built of tested metal made to stand the ultimate of heat, friction and endurance.

The already torridly hot laboratory

became hotter. Activity spread its hand over the mighty place, and, in their appointed positions, engineers—Jerry and the doctor included—released the inertia and rods-of-force machines. Outside, the pillars of atmospheric safety sprang once more into being.

Slowly the girl increased the attractive power of the Gravity-Tripler, seeing in her mind's eye the frightful power of the dead star upon which Earth's life depended. Of a sudden the Earth seemed to sway sickeningly. One or two of London's taller buildings toppled over in a smashing string of bricks and masonry.

"Easy, Eunice—easy!" Morgan counselled. "To succeed, we must have the pull of the star in exact counterbalance to that of the electric orbit, otherwise we'll disintegrate! There being no gravity, our neutralizers can't help us here. Careful does it."

"All right; and keep your inertia machines checked to prevent further mishaps," the girl replied tensely, her eyes glued to her banks of instrument meters.

Then came the most ticklish, the most exacting task, that scientists had ever known.

Little by little, checking each others' movements, they kept Earth steady as she was inexorably pulled out of her electric orbit. True, there were lurchings and shiftings, sensations akin to the bottom of the world falling out, but otherwise everything was in order.

The stupendous engines that were shifting and protecting a planet simultaneously became giants of din and heat. Mechanics, twelve to each monster machine, hovered in tireless patience, oiling the giants and seeing that their power was constantly maintained.

"We're doing it!" Eunice gasped out huskily at length, tossing back her damp hair from before her face. "Look!" She pointed through the window. "The sun is receding!"

"Right enough!" Morgan panted

hoarsely, and shook great globules of perspiration from his streaming face. "We're winning! Keep going!"

The movement was slow, a trifle jerky at times, but nevertheless constant. At last the frightful power of the dead star, exerting its effect along the band of ether chained to the Gravity-Tripler, was at maximum—as the field of force from the electric orbit correspondingly weakened with distance.

Faster Earth moved—and faster. Louder droned the massive engines. Hotter became the reeking air.

"Right! Cut off the field of attraction, and bring the gravity neutralizer to face north-north-east," Eunice exclaimed at last. "Instruments show we're headed straight for that dead star; only a few million miles separate us from our own Universe. Stand by!"

Orders were obeyed to the letter and, the instant the field of attraction from the star was cut out, Earth ceased to accelerate, and for a long time maintained a terrific, constant momentum, impelled by her initial send-off. A clear and mighty leap through the blue infinity to the edges of the known and lovable Universe of comprehension—the black, understandable void.

The distance was covered in precisely seven hours, fourteen minutes, Earth slowing down somewhat as the now very weak pull of the far distant Sun's electric orbit braked the momentum.

When the time had elapsed, the whole world seemed to reel crazily; even seemed to rebound. The more delicate of the instruments in the laboratory cracked and broke under the strain. The line of demarcation was crossed and the vast, infinite reaches of the interstellar void were on every hand. The blue infinity had vanished completely, so utterly did the curve of the normal Universe hide it from view.

"We've done it!" Morgan gasped out thankfully. "We're back in our own Universe. Now throw in the de-ether-

izer and gravity neutralizers. We're going forward, as fast as we can, and while we go we'll get those sun detectors made——"

"Yes, you start on that right away, doctor," said Eunice. "I'll watch over this particular shift; for shifts we'll have to have until we're safe again."

SO, whilst the doctors and his assistants labored on the conversion of the detectors into sun-compasses, Earth, alternately under the guidance of one or other of the assembled scientists, hurtled once more through the infinite reaches of space, truly a wandering body, which had already crossed the known cosmos and was daring now to make the return trip! The gulf of infinity, the reaches of the incalculable, had been overcome by one woman! How little had her father anticipated how truly she would have lived up to his expectations and hopes when he had bequeathed to her his apparatus and laboratory!

As yet, Earth was lost in the cosmos, surrounded by two hemispheres of moving stars, unknown clusters, and black profundity. Space—space! But a space at once knowable and understandable; not a blue enigma, possessed of eccentricities and mysteries defying the comprehension of even the most brilliant Earthly minds——

After Earth had been traveling in a perfectly straight line toward nowhere in particular for many weeks, at a pace defying computation, the Sun-compasses were completed, and the doctor set to work to test them. Inwardly, he half doubted the girl's theory, but to his surprise the first effort revealed that her imagination and mathematics had been correct.

The detector needle deflected a thirty-second of an inch the instant the current was applied, and swung round on its universal bearings to a point marked "north" of the cosmos.

Immediately the de-etherizing force

was swung round until it was precisely parallel with the needle. From then on began a chase through the infinite, Earth still retaining the same velocity as she had possessed at first, as had already been proved, perpetual motion took place in a de-etherized channel——

Onward through space—and still onward, until finally the distant smudge of the Milky Way hovered athwart the void, cut in two by the light blocking de-etherizer. Fast—incredibly fast—Earth at last reached the inconceivable mass of this galaxial island, passed through its midst after many chronometer days, and still onward past the giant stars, recognizable outposts of space. The scientists viewed these blazing stars with emotions akin to exiles returning to their native land——

Time after time the position of Earth was checked by the never-failing detector needle, until at last the nearest stars, Alpha Centauri and Proxima Centauri loomed up in the celestial emptiness. It was the signal to slacken speed. The ether channel was removed by degrees, and the full view of the void appeared when light waves resumed. The gravity neutralizers prepared for action. Alpha of the Centauri was to brake Earth's headlong rush.

A hop of twenty-five billion miles remained to the normal solar system—or what remained of it.

Slowly, with painstaking care, the stupendous onrush was slowed down, the pull of Alpha exerting its full force, until at last Earth was moving at a more rational rate, finally approaching to within 5,640,000,000 miles of the Sun. This distance was nearly 3,000,000 miles beyond the range of the now vanished planet of Neptune, and was found to be just on the edge of the solar disturbances. The Sun itself was visible only as a tiny, weak star to the naked eye from this enormous distance.

At this point, Earth was securely anchored with neutralizers, which, exert-

ing the opposite effect to gravitation—on three different giant stars—held her as steady as though braced with actual force rays.

Mankind, however, still remained underground. Outside, the surface of Earth was dark and frozen, white from end to end. Only the atmosphere, which of course remained quite unharmed whilst Earth was still, prevented instant death from the frightful cold of space.

The rods of force had been extinguished, there being no occasion to use them whilst Earth was steady.

"Is the projector ready for solar projection?" Eunice asked crisply, several hours after Earth had been anchored.

"Yes—in the next apartment," Morgan answered promptly. "Come along; I'll give you a hand. You, too, Jerry."

Steadily, the entire group of scientists filed into the vast, adjoining room, where had been erected the enormous projector for hurling orbital force at the distant Sun. To determine the range and position had been the work of several hours, but now all was in order. Since the force would pass through the walls without impedance, Eunice gave the order to start.

A lever moved; a switch was depressed, and had not the floor of the room been earthed beforehand the entire party would have been reduced to ashes by the mighty voltage of energy that invisibly hurled itself from the storage generators into the projector. As it was nothing very untoward occurred. The engines in the contiguous apartment hummed musically.

The projector moved slightly back on its recoil slots—then the task was over. The force, many minutes later, would reach the Sun, and, if the girl's computations were correct, would render it safe forever from disturbing influences.

"That's done," commented Morgan in

satisfaction. "Now for the instruments where we can view the effect."

With the same precision, the scientists returned to the next room and anxiously began to watch the row of complicated meters on the ebonite paneling that would announce the success or failure of the experiment. A few minutes passed in dead silence, then Eunice pointed a steady finger.

"There you are!" she exclaimed triumphantly. "That master meter is decreasing. So are the others! A little while ago they showed the voltage issuing from the Sun; now they're creeping back down the scale."

"You're right, Eunice—dead right!" breathed Jerry. "What a woman you are!"

And an hour later the needles pointed to zero. The Sun was again normal!

A FEW hours later, after a rest and a meal, the scientists met again, Eunice, as ever, commanding affairs.

"We come now to the last problem, and one of large proportions, too," she said, her voice grim. "Every planet, when we moved Earth away, was destroyed. The Sun, too, shifted some millions of miles in his position. What we have to do, to live again in comfort, is to find some way of equaling the balance that has been removed. Mass of some kind. I want some suggestions, please."

"The Earth alone, revolving round the Sun, would result of course in Earth moving into the Sun, because there is no other preponderance of gravitation to maintain an orbit," remarked Morgan thoughtfully. "To provide planets or bodies to equal exactly that of what is missing would be impossible, because we do not know the actual weights."

"We know the weights of the planets that have disappeared, of course, and some of their satellites, but we do not know the weights of the other specks of matter—the asteroids, for example, that

kept our balance perfect. Even the smallest ounce on the wrong side might mean destruction—— No, that is not a practicable theory. There is only one other one——” He paused to find the girl’s bright blue eyes upon him in mutual understanding.

“Yes,” she said quietly, nodding. “That one way is to erect gravitation neutralizers in four places on Earth, each of the four places to be exactly a quarter of the way around. In that way, by increasing or decreasing the force at will—the exact amount to be determined later—we can accomplish two things. One is to use just enough neutralization to make the Sun’s pull too weak to drag us into it, yet strong enough to keep us in the orbit which our initial take-off from our present anchorage will create. The other is, by altering the forces we shall cause Earth to turn slowly by alternating pressures, and, as one tower gets out of line, the other will come into it—so we can keep Earth ceaselessly turning, and also keep here in an orbit. Upon four towers, therefore, upon their upkeep and maintenance, will rest the safety of humanity through the ages to come—until the end of time.”

“Yes, Eunice, it is the only way,” the doctor agreed meditatively. “We can determine the rate so that we move at twenty-four hours’ rotation, and we’ll try and make the year pretty much as it ever was. There is only one thing. There will be no tides; the moon being absent we’ll have tideless oceans. There’ll be solar tidal drag, of course, and——”

The girl shrugged. “If we have a planet closely resembling the one we once knew, does that matter?” she asked quietly. “We shall be back in our rightful place in the cosmos, and that after all is all Earthlings need trouble over. Who knows? When gravitation has again adjusted itself, Earth may form into an orbit of its own.”

“Maybe,” agreed Morgan, a trifle doubtfully. “For the time being we will adopt the plan decided upon. I will inform the populace right away.”

And he turned away to the microphones communicating with the underground——

FOR nearly six months Earth remained at anchorage, but underneath her frozen, lifeless surface activity was ceaseless order. Through her iron-hard crust there began to project, levered from the underground, four mighty towers, each arranged to be exactly at the literal four corners of the Earth. Each one stood eight hundred feet high—solid and immovable monsters of iron and steel. Once they were arranged, the vast neutralizer engines and power houses were added, cleverly arranged to be in the towers themselves, protected from every known element and storm likely to strike Earth.

Once this was accomplished, enormous task though it was, Earth was ready for the last hop to bring it within range of the Sun at its normal distance of 93,000,000 miles from that body.

Once more humanity resealed itself underground; once more Earth moved through space, cloaked in her blazing rods of force. The initial momentum was carefully planned and checked, and resulted in perfect success, sending Earth finally sweeping around the Sun at practically its normal distance to within a few thousand miles, and moving at the correct speed of 18 miles a second. Checking and careful rechecking on the rate of gravity neutralization revealed the fact that a balance could be struck between the two, with the result that the gigantic, automatically-timed neutralizers set Earth turning on her axis once in every twenty-four hours——

Earth was again habitable! The incredible, frightful journeys through space were at an end!

Mankind moved out of the underground, and after many months went to and fro once more beneath a blue sky and hot Sun, readapting himself to seasons, and spending the time at first in rebuilding whatever slight damage had taken place during transit.

At first, the mammoth towers on which the safety of the world depended were regarded in awe. People came from various parts of the world to view these vast sentinels of safety and security, to marvel at the massive power houses, and try and understand, futilely enough, the mind that had originally conceived them.

This was at first. In ten years the towers were commonplace and considered to be remarkable eyesores. In twenty years mankind had grown to positively hate the towers, which blocked the path of ever-advancing commercialism. The story of the trip through space had become almost legendary to the layman; only a few remembered it, and even they half believed they had dreamt it! Some woman, hadn't it been?

Oh, yes—Eunice Banks was still alive. A generous world—for her discovery of the blue universe and saving of mankind in general—had seen fit to confer upon her the degree of Doctor of Science, a laboratory of her own, and ten thousand pounds a year for life. Which at best was fairly childish, since she had personally inherited a sum tripling that conferred upon her. As for the degree and the laboratory, they meant nothing to her. Once she had achieved her colossal task of moving Earth, she seemed to take but little further interest in things scientific—the driving force of her terrific mind seemed to vanish entirely. She responded, four years after Earth's return, to the persistent pleadings of Jerry, and married him—only to find him sink down into the churlish, surly individual he had been at first.

Eunice became secretly embittered; only the genial Dr. Morgan seemed to understand her, and even his mind failed to attain her amazing levels. To her, married to Jerry, pursuing a humdrum progress, life became a nightmare. Her imagination was in fetters; her superb powers stilted and warped. Silently she longed for another cosmic disaster, and, because none came, she became more disheartened through the years and finally died, fifteen years after Earth's return. Her ending was peaceful, after a fashion, and her funeral gigantic.

At her death, Jerry suddenly awoke from himself to find what he had lost. Too late, he rose to tremendous heights—those heights which he had shown he would reach when he exerted himself—and finally spurred the world into erecting a mighty bronze statue of his late wife, in memory of her services to mankind. Ultimately the 60 ft. statue in bronze appeared in the heart of London, with the inscription—"Eunice Banks, the Woman who saved the Earth," engraved upon it. Certainly it was a magnificent statue—a perfect replica of her majestic figure. Her garments were billowing comets, tails, and in her hand reposed a reproduction of the globe of Earth with its four giant towers—

The statue remained; became covered in grime. The world worked on, and forgot.

The towers remained until the great storm of 2932. Then, in a terrific hurricane, three of them were blown down, and the power houses wrecked. Shuddering humanity, knowing from history the use of towers, waited for the inevitable plunge into the Sun.

Nothing happened! The storm cleared. Earth became warm and pleasant again after the upheaval. The scientists calculated, and arrived at an amazing discovery. The Earth, as Eunice had once predicted, had formed

into an orbit of its own. The magic mechanism of the cosmos had delicately adjusted the balance, and Earth was spinning along in its own orbit—a warm, happy planet as of yore, save for the tideless seas upon which plied the ships of commerce, monster liners of those advanced days——

Another amazing revelation was that the neutralizers hadn't been having any effect for nearly fifty years! The vital power had exhausted itself; nobody had known how to replace it, and no engineer had been aware of the fact. The unknown stoppage had resulted in the adjustment which later proved so beneficial.

Another thousand years passed. The statue of Eunice Banks still stood, scarred and grimed with age now, inscription covered with verdigris. A forgotten relic of an astounding past.

So onward through time—ordered precision and exactitude. The Earth grew older, until at last the work of solar tidal drag was done and she came

to rest with one face to the Sun—a depopulated planet, mankind long extinct.

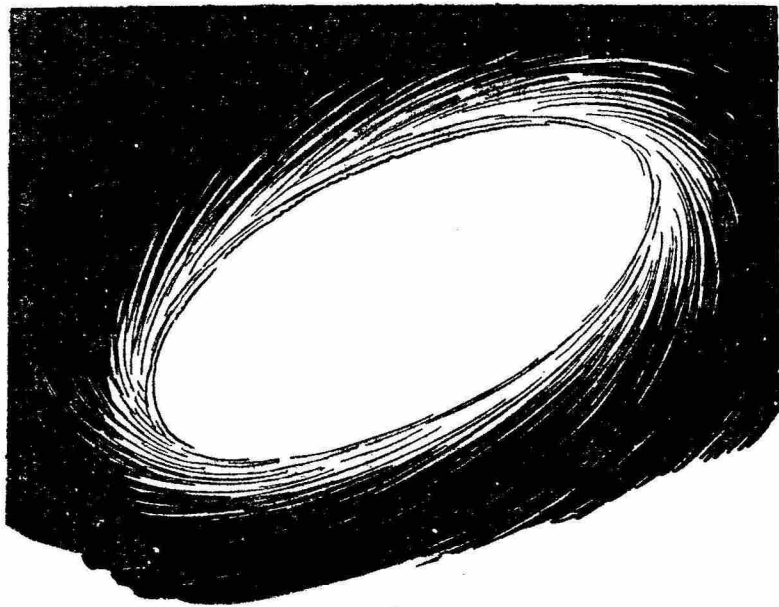
Yet, amidst the crumpled ruins of colossal edifices there still stood, slightly one-sided now through underground subsidence, the bronze statue, etched out against the dull red ball of the dying Sun. A woman, facing the eternal stars, with Earth in her hand.

Who knows? Perhaps even when the Sun vanished and became a dead star; when Earth had finally crumbled into cosmic dust, the spirit of Eunice Banks would again soar through infinity, upward—unhampered, untrammelled as her very imagination and genius had always been—upward even to the blue infinity itself——

Whatever might happen her record was written in the stars. Past, present or future she would always be what the statue's inscription plate declared——

EUNICE BANKS——

THE WOMAN WHO SAVED THE EARTH!





The Lady of the Moon

by Philip M. Fisher

WHETHER Professor Kimball Spencer Jamison was simply a fool or one of those super-geniuses the world later admits was two centuries ahead of his time, I do not know. A little, spindly fellow, with overintelligent rather bulbous eyes, with

tufts of ruffled gray hair like Picard's and a babbling gray tuft on his chin along with them, he looked more the ineffectual spouter of new "isms" than the "ahead-of-his-time" scientist he perhaps was.

He was fortunate in having an in-

surance company's annuity ever at command—it paid for the barnlike laboratory atop the old Ruskin mansion on the crown of Russian Hill, for a Filipino boy to cook the meals and force him, by turning out the laboratory lights, at least to muddle over food in the tiny dinette looking over the Golden Gate; for materials—metal, glass, chemicals and rubber—that allowed his deft hands to keep up with the racing concepts developed behind those alert brown eyes.

He belonged to the Bohemian Club, by the same bequest that had left the annuity. But if he knew another member besides myself, then I, who put down these words of my last visit with him, am, as the saying goes, a Chinaman. He had only one visible bad habit—he smoked those vile, black cheroots that one buys at a dollar a hundred down Columbus Avenue way. But he never smoked them in his laboratory. The latter, like his endless supply of blue smocks, he maintained as a great physician would his personal hospital.

Perhaps Professor Jamison was a fool.

He disappeared on the night of October 13th. A full moon flooded the bay. The lights of Oakland on the Alameda County shore, of Sausalito and other Marin County hamlets, of Tiburon, of the late ferryboats and of the great city below, were like rubies and emeralds and yellow gleaming diamonds, in clusters, clean-cut lines, widely strewn. The hum of the city was low.

The moon, every feature clear, was near its height, preparing to revolve with its starry partners down below the western sea. Atop the lofty laboratory was Professor Jamison's small but completely equipped astronomical laboratory. I left him there at shortly after two a. m. to fetch for him—his eyes being glued to his newly invented visual screen—more photographic plates. I returned in less than ten minutes. He

was gone. And when I say gone, I mean exactly that—gone!

EARLIER, at something after nine in the evening, with three other supporting members, I was starting a first rubber down at the club. Glasses tinkled. Voices were low. Stakes were the usual. Fragrant smoke was beginning to wreathe bluely along the drapes. Soft-padding Chinese boys, some of them forty years with the club, took our orders, whispering "Mr. Pete, Mr. Jim, Mr. Arthur," as was their right and their joy. The evening was young, promising to be long and full of peace.

I was summoned to the phone. It was Jamison.

"The moon is perfect and everything is ready," his enthusiastic voice declared. "I want you here."

"What," I demanded as with some exasperation I glanced down the lobby and reflected on the hand just dealt, "has the darned moon got to do with me?"

"At thirty-one minutes past eleven and until six minutes past three in the morning," his voice jerked on, "it will be perfect. And I finished in time. I finished, man, finished again! And the night is clear—as clear as when I did it three months ago. I have left word with the boy to give you a smock and send you up alone——"

I interrupted. "Listen, fellow, Bangs and Hertzheimer and that Kelton oil man and I are just in the midst——"

There was no answer. I said: "Kim." And waited. "Kim!"

I banged the receiver down. Meeting the gaze of the others I reached for my highball and slowly drank it down. These men knew of me and my friendship and grinned.

"Yes," I said, with what I know was an asinine smirk, "Dr. Watson must be ready for his call. Get MacElroy over there; he's been eying you birds for half an hour. Sold short and is ripe for doubling. 'By."

Five minutes from the club I was on the hill. Santiago's hands shook as he took my coat and sidled me into a fresh blue smock.

"What's up, Santa?" I whispered.

"I do not know, sir," he returned, "except it is that the señor professor is ready for that gr-r-r-rand expereement. He has request you do not hesitate, señor, prior to ascending to the observation. Thees way, señor."

I shrugged. Ordered around as usual, when it came to both professor and his retainer.

The kitchen was bright; the dinette slashed with the moon's brilliant slant. The lofty laboratory, taking up half that huge mansard roof, was black as Mercer's Cave. Santa steered me to the ladder and I climbed, the smock binding my knees. The observatory was likewise black. Softly I lowered the trap as ordered and waited.

I heard a sigh. A shuffling step, a click. For a moment light blinded me, and then I believe I gave a dramatic gasp.

Professor Kimball stood before me, rubbing his hands. Two tufts of gray hair ruffled straight out from his ears, one stood up as though electrically inspired, and that on his chin was aquiver. His eyes were positively luminous. A great excitement filled them, a great anticipation. He stopped rubbing his hands and reached one of them within his smock. He thrust forth some of his dollar-a-hundred cheroots.

"Come," he whispered, "come. Outside on the platform. We cannot smoke here."

Still I stared about me. It was the first time I had been in the observatory since May—nearly five months. Many visits in the laboratory below with its soaring roof and white tiles, but not up here since May. As he plucked at my smock, I found my voice.

"What in the devil have you been up to?"

"Outside we can——"

"One minute, fellow," I interrupted. "You've been acting like a kid building a secret tree house for the past five or six months. What in the name of all that's holy is the meaning of all this junk?"

Life is odd. Thoughts are peculiar. No sooner had I uttered that facetious "junk" than I wished I had not. Kim's chin thrust upward at me, and a shadow passed over his luminous brown eyes. Yet the grip on my arm was imperative.

"Outside—outside. We can't smoke here—we can talk outside—the moon—it will be perfect. Perfect."

I stared at the complicated tangle of angled piping and prisms and ranked vacuum tubes beneath the eyepiece of his telescope; from them to the aluminum-colored screen, man-height and arm-spread width, where the cupola wall soared; down to the glass-appearing platform below the screen, with its gadgets like copper anklets; up to the white metal arms reaching downward from the rectangular framework that apparently served to connect all—white metal arms terminating in bracelets of the same copper hue. He could drag me no farther.

"What the devil are those? They're new."

"For Heaven's sake!" exploded Professor Kimball. "Outside we can smoke and talk."

A METAL-RAILED balcony six feet wide surrounded the thirty-foot cupola housing Kim's astronomical observatory. Room enough for armchairs that might tip back against the curving walls, room enough for feet to be cocked on the outer rail. And the city and the jeweled bay and distant communities beyond.

Four matches Professor Kimball snapped before one reached flame. And when he had a light I observed facetiously:

"Nerves, eh?"

"It is perfect," he said with a note of reproval. "Perfect. Three months ago I did it, and to-night I can do the same. In days to come, of course, there will be transportation. Rocket ships. Something. Then they will not only see, they will feel. Will explore. Will know! We can only see."

I puffed reflectively, looking out over the jeweled bay.

"I comprehend that you've developed an idea to the point where you believe you have hit on something revolutionary," I commented with continued facetiousness. "I can understand why during the past five or six months you have led me into your laboratory, clad in one of these mad smocks—but not beyond your laboratory, because you were doing something in the observatory that you didn't want me to see. I can see that either you are a damned fine scientist or a damned fool. I can only guess which—you still smoke those poisonous cheroots."

There was no reply.

Jamison drew slowly, exhaled slowly. I might not have been there, yet I know I was unconsciously in his mind with him all the time—for that was his way. The brilliant, clear-surfaced moon swung up, reached its height, hesitated before the downward slope that would hide it before the dawn. The bridge game was undoubtedly still going on; MacElroy probably in my place playing the sucker I had offered the other three. The Chinese boys would be padding about—

"To me"—it was Professor Jamison's voice interrupting my reverie, yet strangely unlike Jamison's—"to me she is the Lady of the Moon."

Deliberately my stare was cold.

"The—ah—what?"

"I think she is just that," he said, nodding as though to himself. "To me she is the Lady in the Moon."

I turned to him. Then glanced at the

lunar satellite brilliant in the blue-black sky. I softly muttered:

"Baloney!"

"The moon," he went on, "is about three hundred thousand miles away. Three hundred thousand is only twelve times the distance around our earth. That you will admit," he went on nodding again, "is not very far. If we can see——"

"If we can see," I interrupted cynically, "then, because seeing is believing, we believe. And if we believe—we can go."

Jamison was on his feet. He reached forth, and for the first time I noted the luminous time piece he had hooked on the rail.

"It is time," he said. "Time."

I arose. For some reason I felt vaguely shamed. I ground my cigar under my heel, and he ushered me into the cupola, followed, and, in the absolute blackness, I heard the click of the lock. I waited, attentive to his padding, cautious steps.

"Professor Jamison," I said, and the loudness of my voice started my scalp, "how about a light?"

"Wait," I heard him breathe.

"You rushed me here and I've been waiting three hours," I protested.

"It is time now," came his word.

I remained where I was, one hand against the wall. A low hum started, became louder. Like luminous ghosts a row of bluish glows appeared. I waited. Jamison was shuffling here and there. The hum increased until it seemed to pulse the very air.

The blue light increased. I looked at my hand. It was a bluish white. Rather ghostly. I slipped it into my trousers pocket. I reflected that Jamison studied weird theories; that he had at his disposal an annuity that would have been welcome to any research laboratory on earth; that he had hinted to me of many things; that some seeming eccentricities he had brought already to concrete

reality—and given the proceeds to the San Francisco Chest; that now for five or six months he had been mysterious to me, his only—so far as I knew—confident.

He was either a lucky fool in his experiments, or the veriest of geniuses. The blue light completely filled the cupola. The bulk of the telescope loomed above. The aluminum screen and glass platform and copper bracelets and anklets suspended from the white metal arms were ghostly, but clear.

Like a phosphorescent creature from the depths, Professor Jamison floated hither and thither, touching this and that. Came a low rumble, and the cupola began to swing. A slight dizziness touched my brain, my stomach. It cleared. Kim was at the lower end of the telescope, bent, hands in slow motion. The rumble slowed. The blue light steadied. Jamison was at my side, gripping the sleeve of my smock.

"Stand here," he whispered. "You will see what I saw months ago. For three nights with the same moon, she stood there. She should——"

His whisper was cut short.

THE aluminum screen had almost vanished in faint, bluish clouds appearing upon it. The humming filled the cupola. The mist cleared. Before us I saw a mountain range. I confess I felt it to be a mountain range before I knew it to be such.

Things congealed—closed up—slowly, slowly. Jamison gave a low exclamation and in the blue mist floated swiftly to the butt of his telescope, twisted this, moved that, deftly, surely. He returned, breathing with a deep inhalation and exhalation that oddly stimulated my own.

"Soon," he whispered. "We can only wait."

The scene became clearer. And suddenly before us was a meadow, a clump of trees, a swiftly rising mountain be-

yond. Jamison's hand clutched my arm. I heard his deep breathing.

"The same. The same."

I confess that I stared. The blue light was about us, was part of us—yet the scene was not. I gripped myself. What was this? Jamison—a romantic and learned fool—— A new shadow appeared, close up. The clutch on my arm tightened.

And then the shadow became a woman. She seemed first but the flat, almost photographic reproduction of a woman clad in the graceful flowing garment of the ancient Greek—and then she stepped forth. And was there. She was there before the screen, there in all her golden-headed glory, arms thrown toward us, sea-blue eyes gazing into ours, lips apart, and the breath raising the white bosom that showed at the neck of her robe. My own breath caught now. She was real.

"I call her," whispered Jamison's voice in my ear, "I call her, though there are probably others of her kind, the Lady of the Moon."

Inanely, I whispered: "The telescope then—it is focused on the moon?"

"On the very spot it was focused on three months ago," came Jamison's whisper. "I have waited for this night, this hour. I have built that platform over there. Light rays and other rays—new—and an absolute focus. I don't know what they will do. I wanted you here. But she came, three nights. She seemed to know. I am nearly fifty, and my work—you know, my friend—my hair makes me look like a damned fool, a seaweed tufted and senile old fool. But she came twice after the first time I saw. And I think—Pete"—he broke out almost in desperation—"I think, Pete, my friend, she somehow can see me!"

And suddenly he was all action.

"Photographs. I must make more photographs." He padded swiftly to the eyepiece of the telescope, the eye-

piece now covered with the mechanism projecting the vision on the screen.

"Look, Pete, she seems almost in this space. Her coloring, clear, natural, despite the blue light of the tubes. Plates for the camera—plates—I can hold her until I have her on the plates. Then the platform—the platform! If she can appear here—perhaps, perhaps, *surely*, I can appear to her. Else why should she smile? There—why should she throw out her arms—at me, an old fool trying to peer out three hundred thousand miles—to the surface of what we call a dead planet.

"Why? Pete. Pete! The plates. That damned Filipino sycophant, where are the plates? Get down, Pete. Down. On the desk in the corner—you know where it is. The plates. I—I'll step to the platform—I'll see what I can see. Some day, some day—rocket ships—only twelve times the distance around our earth—and we're there. I'll go to the platform. Pete—she's there, there—and you hurry—hurry!"

HIS VOICE was lost in the distance above, as down in the abysmal blackness of the laboratory I felt my way to the familiar desk. I found the rectangular packet, heavy with the glass it contained, and turned. The blue light from the observatory glowed on the upper steps of the ascending ladder. I felt my way along the porcelain of the long central table.

I had one hand on the ladder guide rail, when there came a flash of blinding blue. No sound. No movement. Simply that flash of tremendously intensified blue light.

I called, my heart unaccountably ajitter.

"Kim—everything all right?"

I was halfway up the steps.

There was no answer, and suddenly I felt weak. Nerve deserted me, and I swung about and sat down on one of the metal steps, clutching that packet of

photographic plates to me. I gained my breath. I did not cry out again. I climbed.

The cupola was empty. The vision was gone.

But the bracelets on the glasslike platform and those hanging from the metal arms above glowed with a phosphorescence they had not shown before.

The crash of my package roused me to action. I strode to the platform. The bracelets were glowing, almost ghostlike in semitransparency, yes—but they were cold, cold.

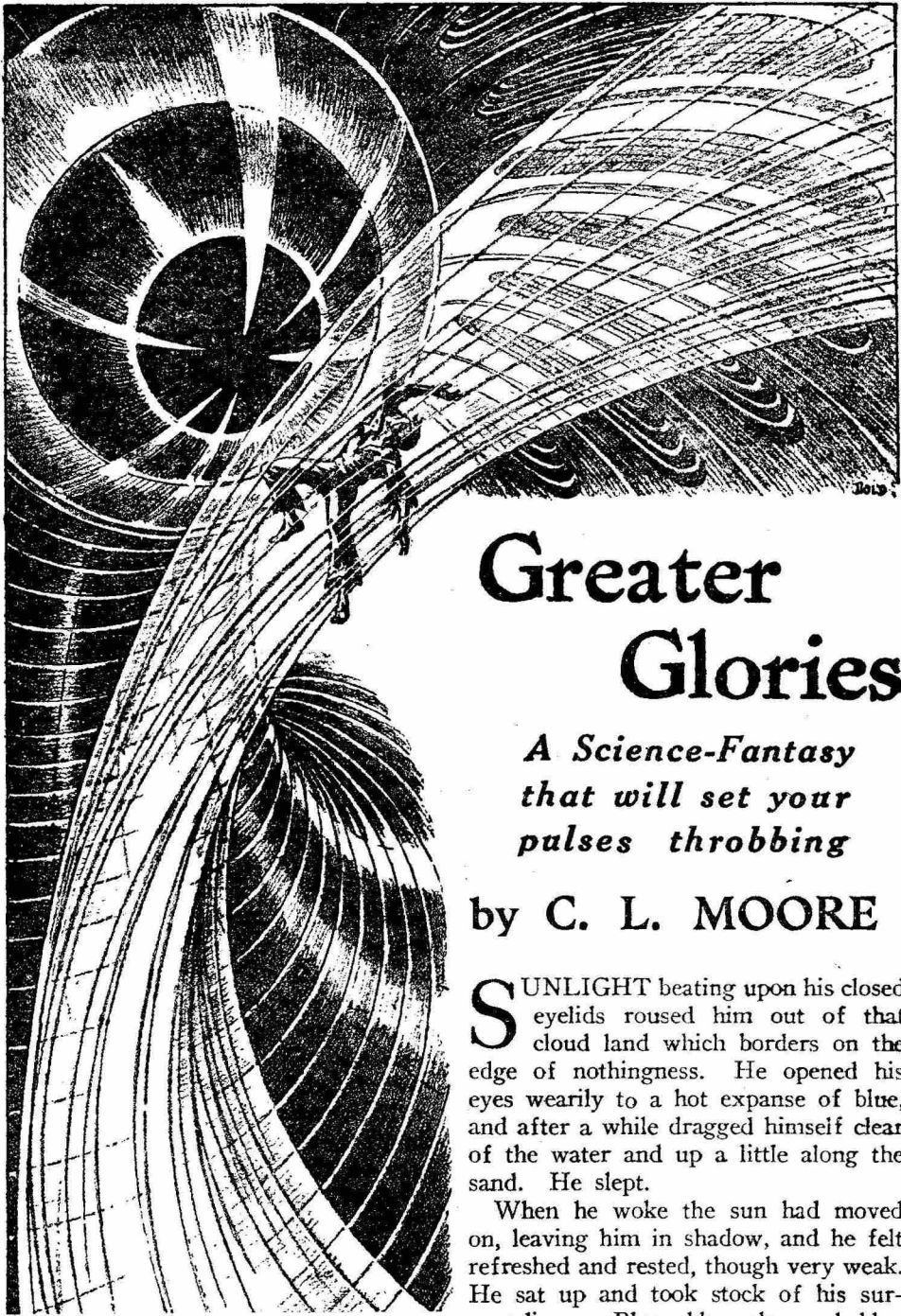
I tripped in the blue light to the balcony door. It was still locked, but with the key I opened it. With one hand on the rail, I hastened around the entire cupola. I reversed my steps, suspecting a hoax; frankly, now, hoping for a hoax.

I called his boy; then police. Professor Jamison was not there. Dead or alive, as search of roof, laboratory, house, block, entire neighborhood brought to light, my friend was not there. He had stepped to the newly made platform on which seemed to stand his Lady of the Moon; on which were those copperish terminals which later we found connected to his system of blue light tubes; above which were those other two terminals connecting with the opposite poles of the same set.

Experts, of course, came in. Deft professional brushes showed his footprints on the polished glass on the platform—steps mounting the platform—none leading away. And, questioned, I suddenly recalled that the balcony door had been locked when I started my frantic search from the inside.

Rocket ships? Why had my friend mentioned them? In the future, yes. We all know that. But his Lady of the Moon. Jamison had brought her there before him—her intensely magnified image at least. Had he hoped to go to her in the same way—and in the flesh?

And did he?



He was whirled with dizzying suddenness into a maelstrom of violence. It swept him irresistibly along paths of whirlpool madness.

Greater Glories

*A Science-Fantasy
that will set your
pulses throbbing*

by C. L. MOORE

SUNLIGHT beating upon his closed eyelids roused him out of that cloud land which borders on the edge of nothingness. He opened his eyes wearily to a hot expanse of blue, and after a while dragged himself clear of the water and up a little along the sand. He slept.

When he woke the sun had moved on, leaving him in shadow, and he felt refreshed and rested, though very weak. He sat up and took stock of his surroundings. Blue—blue sky and blue sea, and the dazzle of sun on empty water. Out beyond the reef he could see the hulk of the splintered ship impaled

on the rock that had been her undoing.

Except for himself the beach was bare. No break along its smooth surface spoke of a fellow survivor from last night's disaster. Well, no help for it. Only a miracle had saved him. Too much to hope for a double miracle. He got to his feet and faced inland. Jungle, tangled and flowery, stepped down to the sand in unbroken ranks.

They must have blown very far off their course, he thought. By all charts the seas were empty here. They could scarcely in one long night, however stormy, have blown far enough to reach land, even such an islet as this looked to be. By all accounts, this place did not exist. That ragged reef thrusting out of the breakers had been a stunning shock last night—land where no land should be.

He set off along the curving whiteness of the sand toward the right, walking slowly and scanning the sea's edge for signs of another castaway, hoping forlornly against hope that he was not alone. But no tracks broke the smoothness of the beach. He went a long way, sat down to rest and fell asleep for a while, a dizzy sleep that was half a swoon. On awakening he went on again with falling hopes. After a long time he thought he saw footprints ahead and broke into a shambling run, shouting. But when he stood over them he knew. They were his own tracks. He had completely circled the place, and he knew now that he alone had lived through the night.

He stood there in his own scattered footprints and stared out to sea, trying to orient himself. Where was he? What chances for a rescue? No use. Every attempt to locate the islet in his mind was frustrated by the very fact of its existence here, in a place which by rights should not exist. An islet—and there had been no land of any sort within days of their last position before the storm struck.

He shrugged his shoulders ruefully and gave it up. Hunger was beginning to gnaw at him, and his throat was dry. That meant an exploration of the jungle in search of food and water, and—he glanced down with a wry grin—he was ill equipped for hunting. Even his knife was gone. Barefoot, clad only in the tatters of salt-stiffened shirt and breeches, a little dizzy with shock and hunger and the bone-deep ache from battling last night's breakers, he had little hope of bagging anything better than a fallen fruit or two. He shrugged again and turned toward the jungle.

There was little undergrowth, and the great vine-wreathed trees stood far enough apart for him to pass easily underneath. It was quiet, very quiet. He did not realize until he had gone beyond the sound of the waves how still a place could be. It was like wading deeper and deeper into a pool of stillness. He walked softer instinctively.

He was alert for animal sounds in the undergrowth, and more than once in those first few minutes he thought he heard the small scuffings and rustlings that some rodent makes when footsteps startle it, but try as he would he could see nothing. There were bird notes overhead, too, and the stealthy sound of wings, but he could never look up quickly enough to surprise the authors of these noises. He went on deeper and deeper into the stillness, and the small denizens of the forest ran before him with the tiny, baffling sounds of flight.

Hunger was tightening its grip upon him now, and sometimes the green jungle dipped sidewise before his blurring eyes and the ground heaved underfoot. Still he saw no living thing, though the sounds of small beasts passing through the bushes tantalized him time after time, and the birds were like winged jeers hovering invisibly to mock him with the noise of their presence. Panic began to stir within him. He felt weakness rising like a slow tide and knew

that if he surrendered now he would never go on again.

After a while he stumbled over a trailing creeper and lay still on the moss, making no effort to rise. It was cool and pleasant there in the flowery dimness. When he was quiet the hunger did not gnaw so fiercely. He thought at times that he must be floating free of his body. He no longer felt the earth under him and knew himself to be swinging upon currents that swayed as gently as the currents of the sea.

The silence closed round him like water, muffling his very brain. He sank into it, fathom by slow fathom, until he had the curious idea that he was drifting deeper and deeper toward some sea bottom of infinite depth, through layers of green silence. Then it was as if some deep-running tide had stirred the green depths, so that a long shudder ran through them pulsingly.

He lay there in a half coma of weariness and hunger, sinking slowly through the leagues of stillness toward—toward—toward—

His drowning brain groped vaguely toward the knowledge of what awaited him below, with dim, wavering efforts that were nearing knowledge—almost he grasped at the edges of understanding and—

But the gnawing of hunger would not let him rest. He opened reluctant eyes upon a green and flowery dimness, somehow feeling as he did so that a presence which had been very near was withdrawing as he came back to the surface of reality again. A forest-haunting presence was guiding his dimming mind into channels beyond all understanding.

A little breeze had risen; the vines shook together and tremor after shuddering tremor ran ripplingly through the leaves. With the breeze a whisper ran through the place. A whispered secret that bent the treetops down and shivered the vines with secret mirth and

rustled in his ears with a maddening incoherence that verged almost on the brink of speech.

He sat up and blinked a little. The leaves had suddenly taken on a new aspect, fallen into fresh patterns. There was something vaguely human in the lines that shivered through them when the wind blew. Or no, not human, but— Then for one swift instant he saw it—a mighty face, neither human nor animal—a vast, serene face whose features were unnamable, outlined in the angles of the leaves, indistinguishably. Clearly a presence hung there trembling for the space of a heartbeat before the wind broke up its pattern and shook the branches apart, and then every leaf was a tiny jeering mouth that whispered, whispered—

SUDDENLY the jungle was alive, animate, inimical, with an alien, imponderable life. A reeling terror came over him. He stumbled to his feet and set off at a staggering run, plunging through the underbrush, ripping at the vines that whipped his face, sick with panic. He felt the nameless presence all about him, thought he saw the vast, unhuman face in every cluster of leaves whose branches limned a pattern. The trees bent down to crush him; the leaf mouths jeered and murmured. Alien and alone, the only living creature in this jungle of haunted and whispering stillness, he plunged on.

When sanity returned he was staggering heavily, blindly, through vines looping down like garlands from the branches of a mighty grove. The poignant twilight sweetness of their blossoms was heady in his nostrils. He had no recollection of how he had come here, save a vague nightmare of frenzied running. But the terror was gone now, and peace had descended upon him as gently as the evening was falling upon the jungle. He lifted his eyes and gazed ahead through the tangle of vines.

Ahead of him loomed something dark and vast. He had no clearer impression of it than that—a great wall of blindness beyond the trees. He stared with blurring eyes which strove to resolve that baffling darkness into some simpler terms which his brain could understand. The waves of his weakness washed up over him and receded again as an incoming tide creeps up about a rock, each wave a little higher than the last. He set his teeth and stumbled forward toward the wall.

Afterward he had no recollection of having crossed the intervening ground between himself and the darkness looming up. He advanced without conscious motion, eyes fixed in all but hypnotized stare upon that strange and nameless thing beyond the trees. He passed under the last festooning vines and the great wall towered up before him. He thought he caught a glimpse of mighty masonry blocks. It might have been a man-made wall, save for the undefinable blurring of it, so that even as near as this his eyes refused to focus directly upon those great blocks and cubes.

Then, with a gentle and inexorable force, he was drawn against the wall as a moth is flattened against a window-pane, and it was neither warm nor cool, but he felt an immense activity through all the particles of the great, half-seen thing. An activity which somehow imparted itself to him and raced through him— There was a moment of the queerest blurring, as if fusion were taking place, as if the wall drank him in.

Those atoms of nameless substance were penetrating his own being—he felt a mighty drawing power fusing them into one. For a timeless instant he was diffused and multiple, and the masonry blocks spread through the atoms that composed him, and his own flesh was a part of the wall. It was an osmosis of solids. He had no clear impression of what was happening, for the substance of his mind was as diffused and inter-

mingled as that of his body. There were wide blank spaces in his memory afterward, as if the stony material of the wall were one with his brain.

II.

HE WAS STANDING in darkness inside the wall.

He waited, motionless, trying to co-ordinate his curiously unmanageable impressions, trying to organize himself into an individual being again. And gradually the darkness lightened about him as his eyes adjusted themselves. He seemed to be standing in an arched hallway through whose walls a very faint crimson light filtered translucently.

After a while, in the utter stillness of the place, he began to sense a deeply throbbing beat, pulsing through the hall in waves that grew heavier and heavier as his senses adjusted themselves to the perception of it, until the whole dim hallway was alive and aching with its might.

Presently, with swimming head, he stepped out into the center of the passage. At the first step he staggered, regained his balance with an effort. He became aware that this hall had never been built for human feet to travel. It was a great tube, the floor curving up to meet the curving walls. He struck out along the upward slope of it after a moment of indecision. Those great beating throbs seemed indefinitely to emanate from above.

His dizziness was too strong for him to be greatly astonished or alarmed as he plodded up the tubular passage in a shimmering daze, accepting his surroundings with no more than a passing acknowledgment. Food—rest—he could think in no other terms. He stumbled on heavily up the hall.

All about him, as he made his slow way through the dimness, he felt a tremendous activity of the material that made up the passage. The very air

seemed to hum with action and purpose toward some mysterious end too far removed from his understanding to be grasped. And ever that beating pulse strengthened and grew until he was lost in great, intangible surges of power, streaming by him and away.

He went on a long way up the steady slope through the humming, unseen activity, breasting the current that flowed so heavily past, realizing his surroundings with only a small part of his dimmed brain.

After many minutes, during every step of which the pulse beat heavier until his head was ringing with the cosmic thunder of it, the steady flow of that power broke without warning into a maelstrom of wild activity.

It snatched him into its vortex with a stunning suddenness, whirled him up and over and tempestuously all out of balance and control. The walls spun about him and the forces he could not see buffeted him with whirlpool violence until all sense of direction left him and the world was a mad upheaval of crimson darkness.

As abruptly as it had begun the tumult ended. He was flung suddenly clear of the dizzy storm center into a dark place whose vastness was one mighty ache of throbbing. It must have been the very heart of that tremendous pulse, for the power of it was so unbearable that his brain failed him and his senses reeled into an agonized oblivion before that intolerable might.

Great beats of force throbbing through him slowly from head to foot brought him back, by degrees, into consciousness. He no longer felt dazed and bruised by the power of those unseen throbs. He no longer fought them. They were not beating against him now, but through him in mighty, unresisted pulses that thundered like heartbeats, permeating every atom of his being. He was one with the power that went surging through the dark.

He opened his eyes, blinked and drew a deep, quivering breath, half in amazement, half in wonder. Strength flowed through him headily. His mind was crystal-clear, and he was no longer conscious of hunger, thirst or weariness. In the new clarity of his mind he knew intuitively that these mighty pulses beating through him were nourishment and rest and healing for every ailment that had beset him.

With relief from his bodily ills for the first time the realization of his predicament came over him. He stared up into the darkness with awakening amazement. Where? What? Why? A tumult of questions tumbled through his brain. Dimly, he could see through the crimson night of the place that he lay in a vast chamber of the strangest shape. Two walls of it met at right angles; the other two curved and merged together into further darknesses.

The floor was curved, too, and the ceiling. The red twilight shivered with pulsing force, so that the walls seemed to contract and expand. He felt his own body contracting and expanding in rhythm with that mighty beat. The world had narrowed to a red darkness through which throbbed the pulsing of unseen thunders, and everything in the crimson dimness beat in tune.

Under his hands the floor was hard and smooth with a texture he did not recognize. Neither warm nor cold. He felt in its surface a faint hurrying and stirring, as if the atoms of it were moving with perceptible violence upon nameless errands. He looked up. Far overhead he sensed rather than saw the vast crimson roof curving down toward the curving walls. He listened, and the silence was heavy in his ears, though the force beats still pounded through him with an intensity that was greater than sound.

AND THEN it came to him what this great hall had been built to repre-

sent. A heart. That tube corridor along which he had come was shaped into an artery—this chamber was a ventricle of a mighty heart. Even that tumult which had flung him headlong into the place was the valve-action controlling the inflow.

He knitted his brows and pressed both hands to the floor. No, it was not a thing of flesh—after all he had seen the masonry blocks that built the outer wall, and this, too, must be the work of hands—but it was more than an inanimate building. A force had entered it and quickened it with a mighty life, flowing through the veins and arteries, pounding out from this huge heart in force beats instead of blood.

What hands had built the place on this uncharted island? What strange, unnamable life quickened it into a simulation of flesh? And if it had a heart and a vascular system, must there not also be a brain? The thought staggered him.

Was it a building? Some age-old temple to a forgotten god, infused still by the great presence of divinity? Then what animal form did it represent? Man? The artery, valve, heart ventricle were of exquisite accuracy so far as his limited knowledge went. Did that accuracy extend to the osmosis process of the wall? Could there once have dwelt here beings who combined the vascular system of mammals with the osmosis system of plants? Or had that curious absorptive power been bestowed upon the walls so that none might gain entrance save those whom the dweller within desired to receive?

If he could only get outside this building—temple—whatever it might be—and see the outer shape into which it had been wrought. But he remembered the blurring of the walls under his gaze. Had that been the result of his weakness, or some inner, unseeable quality of the walls themselves? Some quality

that hovered on the edge of invisibility, or the brink of another dimension?

He remembered that mighty face which had manifested itself briefly to him in the jungle, the brooding presence he had felt as he lay half swooning in the green silences. He felt quite sure now that he was hovering upon the brink of some discovery so vast that his brain could scarcely compass it.

Then his wonderings and his questions and almost his entire consciousness flashed away into nothing as something whirled him with dizzying suddenness into a maelstrom of violence. It swept him irresistibly along paths of whirlpool madness out of the ventricle, through the wild activity of the valve, out along the artery, on and on dizzily through the red twilight down a tube corridor.

He was acutely one with this living temple of a violently living god. The force that was its blood swept through him, unresisted. He whirled on its current through the great artery and out of it, into smaller passages, into yet smaller ones, into great echoing cavities and down corridors once more.

Vaguely, through his reeling brain went the realization that this temple had not been built in the simulacrum of a human body. Inaccurate as his knowledge was of man's inner organs, he recognized differences in the long, dim way he went. There were cavities and darknesses which had no correspondence to human anatomy.

After a long while of buffeting and daze and dark, whirling on long beats of that mighty pulse which flowed so thunderously through the dimness, the force that bore him along the unquiet ways flashed him into a place of sudden light and sound, deposited him not ungently upon the floor of a great chamber and died away in diffuse murmurs and sighs. He blinked painfully and sat up.

The room he was staring about had no similarity to anything he could recog-

nize as an animal organ. It was arched and lofty, irregular in shape, and the floor curved gently up to the pink-veined walls as all the floors here curved. Vividly he realized anew that this place had never been designed for human feet to travel. By human hands it might have been made, but for no tangible human occupant.

The thing that dwelt in this throbbing dark, animating these corridors and cavities and this great, lighted chamber was no palpable creature. The temple had been built for its invisible presence to permeate from wall to wall, and for no other creature to invade. If he was here now, it was by the summoning of that dweller. He felt sure of that. His heart beat a little heavily at the thought.

All about him through the throbbing air went tiny murmurs and breathings and vagrant scents and sounds which had no meaning to him. The light which made visible the whole rose-veined place filtered through a window-like opening high up in one wall, paned with one vast, translucent lens through which vague colors moved milkily. The light itself was diffused and clouded with nameless colors, illuminating the room with a misty, moving uncertainty.

He saw rows of great, circular openings high on the walls around the window, ranged in a symmetry he could not quite grasp. There were other openings, too, so alien in form and purpose that he could do little more than realize their presence. They conveyed no meaning at all to his groping mind. From these apertures the sounds he had heard came softly, sweet and meaningless. Other openings, high along the walls, emitted namelessnesses that were neither sight nor scent nor sound.

Through one orifice pale streamers like smoke wavered continually, and the odor of them was exquisite. They made a dim, soft sound of unearthly sweetness, and through him as he

watched and listened went wavers of inexplicable happiness and well-being. He sensed that there were other manifestations than sight and sound and odor coming from them, too, caressing and soft. He had no faculty for perceiving them, but he sensed their presence.

If, as he realized after a while, this window corresponded remotely to an eye, and the openings from which sound came were the inner orifices of ears, then this being in whose image the temple was built must have had many more faculties than man, more senses than humanity's five. A fragment of verse went through his memory:

A being who hears me tapping
The five-sensed cane of mind
Amid such greater glories
That I am worse than blind.

Some being such as this, perhaps, whose organs of perception opened upon greater glories than man ever dreamed of.

III.

DROWSILY he lay there, drinking in the diffused light and the sounds and perfumes of the place, feeling remotely the vast throbs of the mighty heart far away in the body of the god. And presently he began to be aware of something more than sensation, perceived or only suspected—something like a presence in the great chamber. Something alive and aware and serene. And yet—no, not entirely serene. A troubled presence. He lay still, feeling that uneasiness fill the room, a questing, an incomprehension—

Then suddenly in his brain a thought formed from without, wordless and complete.

"There is another presence here than Ourselves."

"Yes," he said aloud. A shudder went over the room. The walls shook and blurred. The lights dimmed for an

instant and the sounds jumbled into more meaningless patterns.

"Never speak aloud," thundered a command in his brain. "Never in Our presence. What are you? Whence come you? Form your answers mentally. You are the living entity whose nearness became manifest to Us from the outside. Explain your origin. Are you a human creature?"

"Yes. I—I'm a man. I was shipwrecked on this island, and—and——" As he stammered over the attempt to put into words what had happened the voiceless presence cut off his efforts in an interruption that somehow made him realize it had read what he would have said in the instant he groped for expression.

"Yes," it mused. "Yes, We had almost forgotten that such units as you exist. It has been many long ages since We were disturbed——"

"But where am I? What——"

As before, the answer outran the query, so that even before the words had left his thought centers there came a flash through his brain that cut them off in a queer effect of memory. The reply did not come in words that formed in his mind, nor even in a flow of pure knowledge. It was as if he were recalling something long forgotten.

Pictures went dancing through his mind, vivid as sudden remembrance. He saw business and confusion. He saw a people not unlike his own race absorbed as one man in a race-wide task which gripped the whole purpose and being of every individual in it. They were building something whose purpose he did not at once grasp. He watched them at work while time went flickering by in shutter flashes of light and dark. Deaths and births fluctuated the numbers of those who labored, while drought, flood, famine and eras of plenty passed almost unnoticed over the heads of this people which had dedicated its race life to the completion of the

something whose significance was lost upon him.

He remembered not as one to whom these things had once happened, but as one who watches the memories of another play across the screen of consciousness. Much was obscure to him, and the only things which had meaning were those which paralleled his own experience. In this fashion he watched take shape under the hands of many generations a building that rose by infinitesimal degrees over centuries of time.

Gradually he realized that it was the building in which he now was, this living temple. With such painstaking exactitude they built it that generations might go to the angling of a wall or the curve of an artery corridor. They built it in a likeness he could not understand, in the image of some living thing he never quite grasped. It was made without any opening to outside other than those hungry walls, and when it was finished it stood shimmery and unfocusable in the edges of his borrowed remembrance. Even then he could not make out its shape or understand in what likeness it had been formed. And it was empty—a body into which no breath of life had been infused.

Now out of that memory came beating waves of intensity that deepened and grew in successive tides until the force of it was so powerful that its very strength bore in upon his brain the knowledge of what was happening. This race which had built the temple was turning its collective mind in unbearable intensity upon the kindling of life within. Every mind in the whole great race had concentrated upon that one vast purpose of the people, excluding every other thought, shutting out all physical things, closed from time and space and matter, focusing all its power through one single thought of intense purpose, upon that awakening of life within the temple.

AND SO the Dweller was born. Out of the fusion of uncountable minds, out of the sheer intensity of purpose that gripped a race in its relentless concentration, the single mind was born. And it was like no individual mind such as he knew, but an indescribable composite which had a paradoxical individuality, yet knew no singleness. It was "We" thinking as "I." He could get no clearer conception of it than that.

The memory pictures ceased. Out of the blankness their passing left in his mind a query formed.

"Do you understand?"

He realized in it a vast, impersonal aloofness which far transcended anything like contempt. It was the voice of composite billions addressing an infinitesimal unit. He felt no resentment. He was stunned by magnitude.

Timidly he answered: "I understand. But why? To what end was all this done? When? By whom?"

"Too long ago for you to understand, and by a people so long forgotten their names would mean nothing to you. But the purpose was to create. There has never been a perfect world. We propose to make one in which all conditions are designed and centered upon human happiness. No world in the cosmos is suited to that end, and no existent race is capable of dwelling happily under conditions of perfection. But Our race desired happiness so strongly that it undertook the task of creating such a world and such a people. We assumed this form of Self for that end.

"It is so vast an undertaking that We still grope for the foundations upon which to build. Even We sometimes come near to bafflement. But We shall succeed. In the end We shall succeed. Look!"

Abruptly a force greater than anything he had encountered before gripped the man. He was flashed aloft with an instantaneity which outran time itself,

so that he found himself grasping before the great milky-paned window without any recollection of having risen. The vast lens of the eye rose up before him, its opacity somehow not impeding his vision, for he could see what lay outside more clearly than he had ever seen anything before.

Through the translucency of the eye he gazed out upon gray nothing, a flat plane of blank. Across it passed vague darknesses which took shapes and faded again like the reflections of things to come, the shadows of thoughts moving through the mind of the presence. And something like awe came over him as he realized clearly for the first time the measureless capacity for inclusion which dwelt in this composite mind. With a part of its consciousness it spoke in his brain, conjuring up memories out of its race remembrance. Yet there was an infinitely vaster part that groped through voids in search of perfection, casting shadows upon this grayness he watched. Beyond these, did he not sense a mighty third brooding serenely and alone over serene, eternal thoughts?

There was a cosmic dizziness in the speculation that made his senses reel. He turned back to the blankness outside, and as he watched it began to take on depth and motion, stirring restlessly within itself. Presently he became aware that something was in the making. The misty stuff rolled up to one side, higher and higher, thickening into a nebulous dark that by degrees became a mist-wreathed mountain, a range of mountains, a long, ragged vista of veiled peaks rising against a background of nothingness.

High up among its clouds something flashed white. Towers, walls, an unreal city taking shape. Slowly it rose, its outlines shifting and forming again until it stood high and shining, a crown upon the mountain peaks. Clouds rolled over it. Light darted blindingly two or three times through the obscurity.

When the mist had cleared away the city lay in white ruins all down the purple slopes. The mountains blurred together, paled, thinned. Fog billowed in great soft surges to blot them out again, and gray blankness closed once more over the vanished creation.

Still the mist surged restlessly, churned by the roving mind of the presence into nebulous shapes that faded half formed. He saw rocky coasts over which broke waves of curling mist; he saw broad plains that arched themselves up and rolled into mountains, and melted again to nothingness. Great, blurred shapes blundered through the fog, monsters out of evolution's remotest dawning, and once or twice man forms flashed briefly through the dimness. Great cities took shape and faded again. Rivers rushed soundlessly down fog-wreathed gorges to a misty sea. But the gray swallowed everything up and moved uneasily in the birth of other things.

NOR were all the fragmentary creations purely material things. He caught the queerest dim tides of emotion surging through the fog, somehow perceptible to an inner vision which the presence had awakened in him. That vast mind drew waves of violence and of peace through the plasm of worlds in which it experimented, combining emotions in strange patterns to produce reactions upon the mind of the watcher which he could put no name to and had never dreamed could exist.

He realized that the presence was building up complex structures out of these patterns, just as it had built mountains and cities, and like them, discarded everything in the restless search for that yet hidden goal.

A sudden flash of color in the ever-changing dimness caught him abruptly out of his groping effort to follow the workings of the compound mind about him. In one bewildered glimpse he saw

a girl form glowing through the mist. He caught his breath on a gasp and bent forward eagerly. Her vividness was as stunning as a blow, sharp and vital and alive in the midst of all this shifting nothingness.

In the instant of her appearance he thought he sensed a sudden tensing in the vast, composite presence that in-folded him. Something like an awakened interest, surprised and attentive, centering upon himself. It was no more than a fleeting impression, for his whole mind was intent upon the bright figure of that girl. There was something about her that pulled curiously at his emotions, even in the flashing glimpse which was all he had of her. He knew in that instant only that she was lovely and slim and light-footed, and queerly familiar. But almost as his eyes found her she faded as smoke fades in a breeze, blurred and melted until she was nothing but a brightly colored smudge of drifting vapor around which the dimness closed again.

Violence flared suddenly within him as the gay mist vanished. Poignant loss, and an ache of longing. A swift urge to follow, somehow; a sharp necessity to look more nearly into the vivid face he had scarcely seen. The desire was a quick flame within him. Its urgency must have touched the great presence, so queerly intent upon what was happening, for a voice said in his brain, "Go, then." And suddenly everything blurred.

He realized nothing but that. Again the presence moved along those ways which lie outside time, so that without intervening motion he was, in a breathless instant, swallowed up in the mist he had been watching from afar.

In place of the great chamber's walls, billowing fog rolled up all around him. His feet pressed some unseen sponginess and the queer, empty odor of mist was in his nostrils. Not until long after did it occur to him to wonder if it had

been in his material form that he stumbled through the fog.

Whether or not, sensations were perceptible to him as they were to his own body, and he was aware in a remote, disinterested way of other sensations, too, nameless and new. He did not heed them. He was blinded and lost and a little dazed with the suddenness of transition, but the bright memory of the girl still blazed behind his eyes. He stumbled forward through the grayness in the forlorn hope that he might yet find her.

The ground gave disconcertingly underfoot. He floundered like a man in deep snow as he groped through the dimness. And then suddenly he caught a whiff of fragrance and saw upon the surging mist ahead a faint stain of color. He plunged forward, holding his breath in the wild hope that he might be about to come upon that vanished loveliness again.

The colors deepened and ran in shifting patterns over the fog wreaths all about him until he stood embowered in rainbows. And then they began to draw together. Breathless, he watched. The colors cleared and concentrated. The swimming patterns paled. Slowly out of the rose-smudged fog the girl took shape again. The slim curves of her grew clearer and clearer through the veiling mist. She put on reality by degrees until she was standing, vivid and gay and enchanting, before his eager eyes.

IV.

SHE was not a stranger. There was no feature of her he had not known before. For one flashing instant he stared into the blue, bewitching eyes, the familiar face, before she whirled in a cloud of pale hair and vanished in the engulfing mist that closed like water about the whiteness of her.

"Wait!" he called. "Come back!

Come back!" But the words rolled back in dim echoes from the muffling fog, and the girl was gone. He plunged after her, stretching out groping hands into emptiness, running uncertainly through the mist, stumbling over the spongy ground. Presently he caught a flash of white in the grayness ahead, and called once more: "Wait! Come back!"

This time she must have heard him, and to his surprise she paused and hesitated, looking back over her shoulder. Again he called. Slowly she turned and came back through the mist, her head bent and the long hair showering over her shoulders. He saw that by now its pale gold had deepened to a warmer tone, and her eyes were darkening, too. She was unstable as the shifting lands about her. Walking like a white ghost through the mist, she neared him.

As she came the fog cleared from about her. A dim woodland was rising like smoke columns through the gloom; specter trees bent above her ruddy head. She did not seem to realize their presence. A long shudder of that queer, indescribable emotion which he had sensed as he watched from the window of the eye suddenly shivered through the fog forest. The whole scene rippled like a reflection upon water and his own mind shook and clouded to its passing violence. But the girl came serenely forward, untouched.

When she paused before him at last her hair had darkened to sheeny blackness and a warm glow of brown was veiling the pallor of her body. Her eyes, brightly dark behind curving lashes, stared through him with unseeing placidity.

"Look at me," he commanded.

The black gaze did not flicker. Serenely empty, it swam past him, intent upon nothingness. Her lovely, familiar features were untroubled by any trace of emotion, any faintest hint of a mind behind the bright, dark eyes.

Impulsively he seized her by the

shoulders and stooped his face to the level of hers. Under his hands her flesh was warm and firm and smooth, but there was about it an indescribable feeling of impermanence, as if at any moment that rounded body might melt back into the mist from which it sprang.

"Look at me," he said again, and concentrated all his will into the determination that she must see him; that intelligence must awaken and sight come into being behind the empty brilliance of her eyes.

Placidly unseeing, she stared past him into oblivion.

He set his teeth and gripped her shoulders harder and turned all his will into an infinite resolution that she must see him—she *must*—his whole being centered upon that necessity, until the blood pounded at his temples with the violence of his concentration and everything dissolved about him save the liquid blankness of the black eyes into which he stared.

Very slowly, under the almost superhuman centering of his whole mind, a faint flickering awoke in the depths of those serene eyes. Seeing it, a surge of triumph went through him and he bent more intensely than he would have believed possible the whole strength of energy and mind and will upon that awakening. It was a strain that could not be continued long. He concentrated the more fiercely because he knew that, willing her to intelligence with all the power that was in him.

The stirring flicker quickened in those blank eyes. A little grimace crossed the placidity of her features. Very slowly, by infinitely painful degrees, while his mind strained its utmost and the blood pounded in his ears with the effort of concentration, he evoked awareness in that empty gaze. Conscious life swam up through their depths, intelligence awoke.

She stared in mesmerized wonder into

his own compelling gaze while the knowledge of what living meant bloomed slowly behind her eyes. The wonder grew and grew as she stared. Her mouth began to quiver. Under his gripping hands he felt her shaking with the amazement of that infinite awakening. And then suddenly a little cry broke from her lips and her hands flew up to hide her face.

He stepped back, arms falling to his sides, weak and shaken with the relaxation of that tremendous effort. But he had succeeded. The girl stood staring at him, wide-eyed, hands pressed to her suddenly flushed cheeks and a troubled wonder still shining upon her face. And all the old familiarity had redoubled in intensity now that life lighted that sweet brown face. It was more baffling than before, and twice as tantalizing.

The concentration of her gaze upon him roused something warm and pleasant in his wearied mind. He smiled. Her mouth twitched, curled up experimentally. She was smiling back with her first conscious effort. Triumph surged hotly through him. He had created. He had wakened into being an imitative mind whose first effort was a smile.

Her eyes slipped from his and wandered about the smoky vistas of that fog forest which stretched about them. It was fading as she turned to look. Mist thickened between the dim trees, veiling the aisles of melting woodland. Clouds swirled forward to blot out the forest. A faint pucker gathered between her brows. When the eyes returned to his they were troubled. After a moment her lips parted and she spoke, uncertainly, hesitatingly, her first words,

"There is more to the world than this," she stated with a gentle sureness. "I know that. Where is it?"

He shook his head. There was no answer he could make that would have meaning to her. As he opened his mouth to speak, the mist surged forward



With sudden terror he realized the girl was fading, she was melting into the colored fog from which she had sprung.

about them in an abrupt tide. The sponginess underfoot quivered.

"Don't be frightened," he said quickly. "A change is coming now. Watch."

THE yielding ground tilted sharply. Through the fog he heard the girl's gasp. He stumbled an uncertain step or two forward and took her, trembling and afraid, in the bend of his arm, stilling her fright against his shoulder as the ground rose at an angle so steep that he was hard put to maintain his balance.

The mist swirled grayly about them. Sounds of rumbling and thunder rolled through the fog. The tilted sponginess underfoot quivered. Then, gradually, it steadied and the mist began to clear. They stood on the height of a ragged mountain. Its peaks stretched broken summits upward into the hovering gray overhead.

Below them, far away at the foot of sheer-dropping cliffs, a green land of meadows and streams lay spread. Warm light brooded over it from some invisible source, and its trees stirred in the breezes.

It was a sleeping land, untenanted by any animate life, but fair as a garden in paradise as it lay there in its frame of back-rolled mist. The man found himself envying a little the race which might one day people that pleasant green place, and the girl in his arms turned a troubled face downward, staring in puzzled wonder at the far-away panorama.

"I can remember—almost," she murmured. "I think I know that place. It is——"

The words broke off as walls of mist surged forward like an incoming tide in breakers that blotted out the whole green valley from sight. The thick blindness of it swirled over them, and again the ground was shifting beneath their feet, and the girl hid a terrified face against his shoulder as another stir-

ring in the mist spoke of dawning creation.

This time, as the curtains of the grayness swept back, they looked down into a city, white-walled and lovely, in the midst of a fair, green valley. Shadows passed bewilderingly over it from no visible source, and there was the illusion of life in its streets, a faint stirring and hurrying, although no animate creature moved there. The girl leaned forward to look. He heard her catch her breath.

"Oh, there!" she cried. "There—that city! I remember——"

Down swept the veiling mist in a rush that blotted out the white walls and green valley so swiftly that the words died on her lips. She turned a troubled face up, searched the man's eyes with a questing stare.

"What is it I remember?" she asked. "It's gone now, but for a moment I—I knew——"

She paused, for she must have seen that he was not listening. He was watching her lovely, sun-golden face in a wonder and puzzlement so deep that her words had little meaning to him. That face was so bewilderingly familiar that he realized suddenly he knew before it happened just how her brows would lift delicately in query, just how her mouth would quirk as she spoke.

He said: "Why are you so familiar to me? Who are you?"

She looked at him in silence, a deep wonder swimming in her eyes. Gradually knowledge seemed to dawn there—an awareness of something he could not understand. She looked about in the rolling mist with little glances of searching, half panic. What she saw seemed to overwhelm her, for suddenly she twisted from his arms and buried her face in her hands, the black hair swirling forward as she sobbed.

"I'm not real! I know it now—I'm nobody! I'm nothing! I shouldn't be born yet. Oh, let me go back!"

Helplessly he laid his hands on her

shaking shoulders. She shrugged them off violently, the wail of her voice rising behind her hands.

"Don't, don't! I'm not ready to exist—I don't want to be! Why did you make me come alive? I want to go back! I'm not real!"

"My dear—my dear," he cried. "Please don't! You belong to me—I've known you for so long; just how your eyes would be, and the tilt of your nose, and the way your mouth closes. I've known you always—you are real! You belong to me!"

Her hands dropped. With drenched eyes she faced him.

"No," she said a little more calmly. "I belong to no one. I shouldn't exist. I'm not ready yet to be alive. I belong to all these things we've seen: the woods and the green valley and the city I remembered for a moment before it disappeared. Somewhere, sometime in the future, I have a life to live. But not now. Not yet. The race I belong with hasn't begun; the world I should dwell in isn't even created yet. And here I am, lost out of time and space and my own life. I'm alive, but I shouldn't be. I'm not real! I want to go back!"

"But—but—" He stared at her in a wordless confusion. The very thought of her dissolution, back into the grayness that had formed her, made him sick with an emptiness he could not explain. She was so dearly familiar. Not until he spoke had he realized that he had indeed known her always, just that sweet brown face and bending, sunburned body. She belonged to him by every right of long knowledge and understanding. From the first glimpse he had had of her he felt that, yielding without resistance to the curious, appealing pull of her, the ache of urgency to be near her always. The answer broke upon his consciousness with a blinding simplicity.

He gulped and said: "I love you. I can't let you go."

Her eyes widened upon his. A subtle terror woke in them.

"No, no!" she gasped. "I'm not ready for love. I can't! I daren't! I'm not ready for life, I tell you! Not real! All I want is to go back, to wait for my own time. I daren't love!"

She sobbed as the words left her lips, and closed her eyes tight as if to shut out the very fact of his existence along with the sight of him.

The man looked at her helplessly. There was no way now that he could undo what had happened. The very thought of its undoing was intolerable to him. But the distress in her voice was intolerable, too, and after a moment he realized what he must do.

He looked at her. She was weeping now, her face averted and the tears running out beneath her closed lids. And it seemed to him that her grief was more violent than the mere longing to return into oblivion once more. She wept as one weeps who must lose something precious, but impossible to retain. In sudden resolution he laid an arm across her shoulders, pulling her forward.

"Come," he said. "We'll go back. We'll see what can be done."

She sobbed aloud as he spoke, and suddenly gripped his arm with urgent fingers, though her face was still averted. Wordlessly, still weeping, still clinging to his arm in a grip whose tightness bespoke a terror of losing him, she moved forward at his side. In silence they went down the misty mountain that gave so spongily under their stumbling feet.

He had no idea in what direction he should head to return into that vast chamber of the presence. For all he knew it might be impossible ever to return. And the girl's clinging to his arm had roused a fantastic hope which made everything else seem trivial. It was only by an immense effort that he forced his mind away from the thought of her and turned it with all the inten-

sity he could manage toward the great, composite mind of the Dweller in the living temple, calling through the dimness for its aid.

V.

THE MIST churned and twisted all about them as they stumbled on. The scenes faded into nothing. They walked a city's streets, great dim houses rising above them smokily. They waded a shallow sea that washed the feet of the dissolving city. Three times long currents of nameless emotion shivered through the gloom and shook them both in tides of violence that reached the depths of their very souls and passed on again, leaving them weak.

Once a great flight of steps rose under their feet. They climbed toward a mighty portal whose yawning darkness made the girl gasp in some half-remembered awe and terror, but before they could reach it the fog had blotted out everything and they groped again through nothingness. All about them the shadows of the presence's thoughts floated dimly, shaping the mist into world thoughts that faded, half formed.

But these shadowy whims of creation did not touch the man's own mind. Time and again he strove to establish some contact with the brain that was manifesting its power so eloquently in the mist, but no contact came. Enveloped and lost in those vast, shifting thoughts, yet untouched by them, he went on, still striving with all his brain's intensity for contact.

And then quite suddenly it came. His questing mind brushed a vaster one with a momentary touch, and exactly as a hand groping in dimness meets and grips another, so the great brain of the presence seized upon his.

There was a pull as if the strength of that meeting hand were lifting him. The gray mist swam and faded. With his last conscious effort he tightened

his arm about the girl. Then everything blurred again, and once more the presence swept him along paths outside time, so that he had no recollection of having moved.

The great rose-veined chamber of the presence inclosed them both. With the girl still gripped in his arm, he stood upon its throbbing floor, the great walls arching over him, the far-off pulses of the mighty heart beating in measured rhythm through his innermost being.

The presence was a tangible thing in the vast room. He felt it seeking through his mind, drawing out the knowledge of what had passed. Queerly grateful that he need not enter into long explanations of what was still inexplicable to him, he stood quiescent, feeling knowledge draining out of him into the consciousness of that vast, united mind. The girl had hidden her face against his shoulder, and her fingers still gripped his arm with desperate strength.

Presently a thought flowed smoothly into his brain.

"You tell yourself that you love this girl. That is untrue. It was your love which created her. Your presence in Our brain as We meditated upon creation was strong enough to project your own thoughts upon the plasm from which We are molding worlds. When the figure of a girl flashed across Our mind, yours seized upon it and shaped it into your own interpretation of perfection. Unconsciously but surely, you created your own ideal, with all the features which seem to you capable of arousing love. Inevitably you felt that love when you gazed upon them. And because We were curious to see what would evolve, we sent you out to follow."

"Yes," thought the man rebelliously. "And see what has happened. How can it be undone now? For however I came to love her, even you cannot deny that I do love her now."

Silence for a while, as the presence meditated. The girl was breathing in little gasps, and her fingers dug into his arms.

"She belongs in her own world and time," came the voiceless thought at last. "She could have no reality outside them. Her body, half real as it is, you might keep, but you would not desire it so, for the mind which dwells in it will always belong in that other life, that yet unborn future."

"But as for me," broke in the man, "my mind will always be with her, wherever she is. Can't you see that? It is the same with me, for though my body exists in my own life and time, yet my very existence will always center on her. I can't leave her."

THE GIRL in his arms wriggled in sudden alarm. Across his mind surface floated a plaintive wail from her inarticulate brain.

"I want to go back," it cried bewilderingly, "but do not leave me! I couldn't bear to have you leave me!"

Another silence. Out of it the voiceless presence spoke serenely: "Yes. Yes, man, you have spoken more truly than you realize. In one sense your mind will always be with this woman, because by the strength of it you awaked her out of her plasm state of unaware and impermanent existence into conscious life and semireality. By that act you infused enough of your personality into her to make you two indissolubly one. Henceforth each of you is incomplete without the other. We have permitted the ingredients of this curious union to exist, and We have no choice now but to accept it, for love is too powerful a force for even Ourselves to tamper with. We cannot force you apart."

"But neither can we exist together," said the man despairingly. "What shall we do?"

His arms tightened about the girl,

and she began to sob again in small, hopeless gasps.

"Peace, peace!" The great voice throbbed wordlessly through the chamber. "There is no question about an answer. The acceptance of yours you must decide in your own mind, but the answer itself is clear. The woman is a part of Our presence, the product of Our united brain. She must return into the unit that is We. But with her she carries a vital part of your humanity. You have the choice of merging with her and with Ourselves, abandoning your body and the physical life which animates it to join with that single immortal spark which is essentially yourself in the composite unit of Our presence. Only thus can you two know union."

Dubiously the man hesitated as the voice fell still in his brain. He felt no affinity with the presence, certainly no urge to abandon his animate life in order to join some intangible nucleus of ultimate Self in its mighty purpose. And how could he let the girl in his arms leave them? How could he—

Sharply across his hesitance the voice of the presence broke. "There is no choice," it said with calm finality. "The girl must go back."

Suddenly he was aware of a curious lessening in the firmness of the warm body he held against his breast. Instinctively his arms tightened, and sank unresisted into semisolidity. In terror he looked down. The girl was fading. Mistily outlined, uncertain as a vision, she was melting into the colored fog from which she had sprung. Despairingly he clutched after the vanishing shape his own dreams had evoked, and saw only his hands passing unresisted through nothingness. Like the dream she was, she faded in his very arms until all reality was gone from her and nothing remained but a blur of brightly colored fog that dissipated upon the clear, throbbing air within the chamber.

Inarticulate rebellion choked up in his throat. Anger was bubbling hotly in the protest that rose to the surface of his consciousness, but before it had reached the levels of articulation, before he could frame his thoughts for the mental utterance which passed here for speech, something very strange and wonderful happened. He could not have described it. But quite suddenly the deepest sensation of intimacy came warmly over him, and he paused in the midst of his wrath and protest to gasp in the sudden wonder of it.

With that gasp all rebellion died, all need for rebellion. In that breathless moment so close a sense of unity with all that surrounded him was dawning that his very brain went mute with the splendor of it. It was a more exquisitely warm and intimate sensation than any human could ever have experienced before. He was no longer a unit, alone and in discord, struggling against forces stronger than his greatest effort. All about him closed an infolding presence that was one with his innermost being. No words can describe the peace of it, the blessed surcease from all that had tormented him. In the very center of his own innermost consciousness a serene voice radiated.

"This is what surrender means, O foolish human," it said. "The girl you love has merged again into the unit which is Ourselves, carrying with her that portion of your vitality called love. A part of you is one with Ourselves now, and by its merging you gain a kinship with Our presence. Do not resist—do not struggle. This is greater than individuality. This is true happiness, the submerging of Self in the unity of the whole. Be one with Us."

THAT LAST inarticulate command diffused itself through the man's consciousness in waves that spread like ripples in a pool, fading imperceptibly into the vast, serene rhythm of the presence.

He scarcely heeded the voice's cessation. He was no longer thinking as a unit.

In the completest relaxation, spreading beyond the body and the mind and into the innermost places of the very soul, he was surrendering himself to the all-pervading serenity of the presence. Nothing troubled him now. The answers to all his questions and doubts and hesitations were absorbed unasked in the great calm of that composite brain which was receiving him.

In the depths of his serenity, with an untroubled perception which accepted without wonder, he began to be aware of sensations he had never known before—ripples of light, surges of colors without name, washes of sound, wave upon wave of wonder.

He began to perceive kaleidoscopic patterns forming as wave crossed wave and rollers of sensation broke across surges of nameless raptures; patterns that blended indescribably into one mighty design which extended far beyond the confines of three dimensions, reaching out to infinity through space and time and the borders of the ultimate dimension.

He was becoming less conscious of that pattern—Its colors and sensations were somehow becoming his own, and he was a vast and patterned thing which stretched across dimensions and filled space from edge to edge—space, which has no borders—and now consciousness itself was melting away; a burst of roaring glory blotted out all sensation.

Something brushing across his forehead called him back to consciousness. He opened blank eyes upon a green forest world. A vine trailing over a great broken stone beside him had touched his face with its leaves as the wind blew. He sat up and stared dully around.

He was seated at the edge of a vast, gray ruin whose broken blocks heaped the ground as far as his eyes could penetrate the jungle. It was an old ruin,

for vines had grown up over it and moss was thick upon the gray stones. There was something unpleasant about the luxuriousness of that moss, the green, voluptuous vines.

A faint odor like that of long-decayed flesh hung over the broken blocks, and the green things thrust avid roots into their cracks and crevices, flourishing out of the grayness as out of the richest soil.

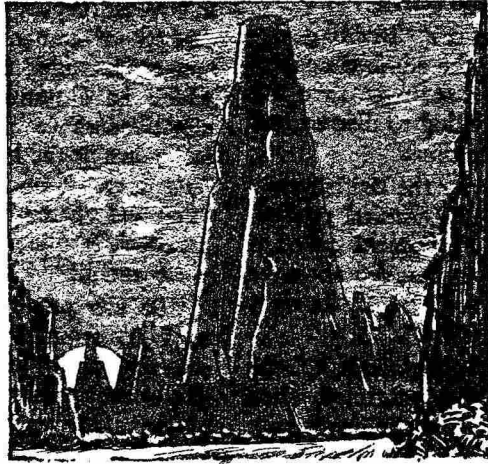
The man's eyes slid unheedingly over the ruin. Something was teasing at the back of his brain, and he knit his brows in a stupid effort at remembrance. He seemed, somehow, with a remote part of himself, to be swimming in seas of glory, breasting surf whose crests broke into music, floating lightly as a dream through depths of nameless beauty. He could recall colors, and the loveliest waves of sound, and a peace so deep it drowned his very brain in quiet. And then—then——

The memory faded. He felt heavy and very dull, and a little frightened. That other Self was drawing farther

and farther away, melting into the splendor, losing all contact with the body that had housed it. Somehow he wanted to cry, and slow tears presently began to trickle down his face. But he had forgotten why.

After a while a light caught his eyes, and he turned an empty gaze toward the west where the glow of sunset shone through the trees. He smiled happily and stumbled to his feet, setting off at a shambling walk toward it. He blundered into trees as he went, tore through vines that hung down across his path. Branches whipped his face, but he made no move to fend them off. His hands swung, forgotten, at his sides.

He came out upon the beach in time to see the last of the red glow sinking beyond the horizon. He would have walked straight on toward it, but the water lapping about his ankles distracted him and he sank down in the edge of the surf, playing contentedly with some shells that had washed up on the shore. The light went slowly out of the sky behind him.



Twelve Eighty-Seven

*The Conclusion of a
great science-fiction serial*

by John Taine

XIV.

STRANGER THINGS have happened, and not so long ago, at that."

It was Admiral West speaking. His listeners were Senator Atkinson and Secretary Redding. They had met in the senator's rooms for an informal discussion of the latest report from the intelligence department of the navy. Allowing for the difference in time, the senator must have summoned his collaborators just about when Jay and Nara started home after their talk by the sea. The morning was still fresh and cool, and the senator had taken advantage of the hour before the stifling heat—which was bound to descend on them presently—could slow down his activity.

"What, for instance?" Redding demanded, challenging the admiral's assertion that things even stranger than the matter they were meeting to discuss had taken place in recent times.

"It was the mutiny of the British navy that I had in mind," the admiral replied. "The politicians in Parliament called it a strike, of course, but that did not alter the fact. Naval men called it by its right name—wholesale mutiny."

"I remember something about it," the senator replied. "They mutinied when the politicians tried to cut the men's pay. That was it, wasn't it?"

"Just that. The whole affair was very skillfully engineered. The men gave three cheers for the king, Parliament,

and the British Empire whenever the higher officers tried to order them back on the job, but there they stuck like barnacles on the guns and the decks, refusing to budge till they won their mutiny. Who would ever have dreamed it possible? The British navy in open mutiny. They won, of course."

"So you think there may be something in this report from the secret service?" Redding asked.

"Quite a lot. Our observers in the enemy ports are highly skilled, conservative, and not likely to be misled by mere gossip. Something important is happening to the morale of the naval forces of the enemy."

"What?" Atkinson demanded.

"Serious deterioration, I should call it," West replied. "According to the reports of our observers, the enlisted men are breaking up into political groups which have nothing to do with their effectiveness as a fighting unit. Agitators are at the bottom of it, of course. And we must remember," he continued, "that the enemy is more idealistic, less practical, stupider in the mass—call it what you like—than the British."

"To any one who knows the enemy as I do from frequent visits to their country, it is inconceivable that they would ever mutiny over a mere question of pay. Money is a secondary consideration with them."

"No; if and when they mutiny, it will be over a dispute about principles or ideals. The conservative element will



stick to the medieval tradition and go to the bottom to the last man rather than surrender one jot of their loyalty to their master. As for the liberals, they also will stand by their guns till the last round is fired.

"But they will not be fighting to avoid taking a cut in pay, but because they are honestly convinced that the time has come to preserve the honor of their nation by shooting it out with the conservatives. I have watched this brewing for ten years. The only thing that surprises me is that the lid has not blown off before. However, things have been moving pretty rapidly of late. Their revolution is just around the corner."

"That's all to our good," the senator remarked. "If they fall to fighting



The fleet rushed into action, to fall upon itself in a fury of destruction.

among themselves, we can stand on the sidelines with our hands in our pockets. We shan't fire a shot or lose a man."

"Exactly what I told you," the admiral reminded him.

"When? You never told me any such thing."

"I did. When you were giving me hell for having talked straight to Tori's sister. I told you—all of you—that that girl was worth more to us than a whole fleet of battleships. Now she seems to have turned the trick."

The senator made a gesture of impatience.

"Who ever heard of one girl corrupting a whole navy?"

"You have. Just now. I don't mean," he hurried on, seeing the senator's hair beginning to bristle, "that she has been down on the docks haranguing the sailors, or anything of that sort. She wouldn't have got very far if she had tried anything so silly. What she has done is more to the point. She is the king-pin—or queen-pin, I suppose you would say—in all this movement of the young people toward internationalism. Others started it, of course, but she has been the brains of it all for the past six years at least. You can't send up a smoke like that without some fire. If we keep our eyes open it won't be long now till we see the flames."

"You mean this girl has deliberately betrayed her people?" Redding demanded.

"As to that," the admiral replied, "it all depends on how you look at it. If her side wins, she will be her nation's Joan of Arc; if they lose, she will most probably be shot as a traitor. We shall have to wait the outcome before we can say what she has done."

"Rather a remarkable statement for a naval man to make," Redding remarked dryly. "Don't let the President hear you getting off anything like that."

"I shan't. And unless I understood that girl's mind as well as I do my own,

I shouldn't have risked speaking out here as I have."

"We shan't go into that again," the senator declared with an air of finality. "The President said the last word in that argument. Anything more to keep us? I'm due for a speech in the Senate to-day, and I haven't seen my secretary yet."

"He's probably still in bed," Redding ventured.

"Lazy devil, I expect he is. Well, gentlemen, we stand adjourned. If the enemy's revolution breaks out before lunch, West, have me paged. By the way, are any of our ships anywhere near there just now?"

"Only the old *Texas*. Lewis in command."

"What's she doing out there?"

"World cruise for the cadets."

"Then that's all right. We don't want some damned fool losing his head and taking pot shots at our friends while they're busy with troubles of their own. Lewis is long on discipline, short on imagination."

THE MORNING AFTER their exchange of confidences by the sea, Nara and Jay were to drive over early to one of the biological laboratories. Before parting for the night, they agreed to breakfast at seven. Tori, a maid told them when they got home, had gone to bed soon after dinner.

Promptly at seven o'clock Jay walked into the breakfast room, to find Nara already pouring the coffee.

"You look as fresh as a water lily," he said, studying her face appreciatively.

"You don't show much wear and tear yourself," she retorted. "Wait till you are ten years older." Her manner changed. "I'm worried about my brother," she said. "You know we always look in on one another to say good night, no matter how late one of us happens to come in—partly because it is an old

family custom, partly to be sure that everything is all right."

"Yes," he encouraged when she hesitated.

"Until recently—the last two or three weeks—he has always been a sound sleeper when he does sleep. Last night I found him fast asleep, but he wasn't resting. He kept muttering in his sleep, as if he were arguing with some one, and waiting for the other man's replies."

"Has he ever talked in his sleep before?"

"Not when I have gone in to see him and found him sleeping. In fact I have always rather envied the soundness with which he sleeps. I'm a light sleeper myself."

"He's probably just overworked."

Jay could have bitten his tongue out for the careless slip.

"That is what I am afraid of," she said quietly. "He goes everywhere—into the offices, the studies, the greenhouses and all the laboratories, and he never seems to consider the risk."

"But he never stays long enough in any one place to run much danger."

"You don't know. Two weeks ago he spent a whole night with your friend in the high-voltage laboratories."

"What friend?" Jay asked, although he had guessed.

"The one who asked you for a drink of water yesterday."

"Look here, Nara," he said firmly, "there's no sense in your getting yourself all stewed up over nothing. Our talk last night has made you nervous."

"I wish I could think so."

He regarded her critically for a few moments, then pushed his chair back.

"There is only one way to face a thing like this, and that is to face it. Let us go and have a look at your brother."

Without a word she rose and took his arm. He noticed that her hand trembled slightly.

"I'll go in first," she whispered, when they reached the door of Tori's bedroom.

She entered and shut the door behind her. It was fully three minutes before she opened the door and nodded to Jay. He followed her to the bedside and stood staring down at the sleeping face of his friend.

"Am I right?" she whispered.

Jay bent down to see whether he could observe any change in the familiar features. Through the closed eyelids he imagined he could just detect the contours of the eyeballs. The texture of the finely chiseled nostrils next engaged his horrified attention. Straightening up slowly he faced her and nodded. She swayed for a second, then took his arm.

As they reached the door a board in the floor creaked. They heard Tori stir and mutter. Jay turned his head. Tori was sitting up in bed, his eyes open but dazed.

"Is that you, Jay?"

"Sure. Nara and I came to tell you breakfast is on the table."

"I have been dreaming about you," Tori went on, as if he had not heard. "What was it?"

"Don't bother now," Nara interposed quickly. "Wouldn't you like your breakfast in bed? I'll bring it to you."

"I don't feel like eating."

"A cup of coffee then, before you get up," she suggested.

"Too hot." He yawned. "But you might fetch me a drink of water."

"I'll get it," Jay said hastily. "Nara, your own breakfast will be getting cold."

"Take me to my own room," she said when Jay had closed the door behind them. "Then go back to him."

"All right. Better take something and lie down."

SHE FLUNG herself on her bed, and Jay hurried away to get the water. Entering Tori's room without knocking, he found his friend still sitting up in bed, exactly as he had left him. Tori took the glass and slowly raised it, against the light of the east window, to

his lips. He was about to drink when something he had unconsciously observed caused him to hesitate. The glass was slowly lowered, and Tori sat staring at his wrist. He handed the glass back to Jay.

"Don't you want a drink?"

"Not now, thanks."

"Can I get you something else?"

"No, thanks. Sit down."

Jay sat down on the chair at the head of the bed. Tori closed his eyes and lay back on the pillows.

"About that dream I had," Tori began.

"Don't bother about it. Better take a nap—and be fresh for work when you get up. It's still early."

Tori seemed not to have heard. He continued, trying to recall his dream.

"You were in one of the greenhouses, looking at the plants. What were they? Soy beans? No, that wasn't it. I know: maize. Your corn. You asked what was killing them. Because the soil was black and rich you thought the corn should be eighteen feet high. I told you it was the glow. Controlled at last. Released at the proper time by a relayed trigger action, like the emission of electrons and positrons from atoms bombarded by radiation.

"I tried to explain it to you, but you couldn't seem to follow. Then you ran away to do some experiments of your own. What on? I remember—fruit flies. I tried to call you back, but I couldn't make my voice carry, and you disappeared in the glow. I sent men after you to get you out, and tried myself, but we couldn't find you. We kept hearing your voice. You said you were working too hard but couldn't rest till you had analyzed the glow. It was all very confused, but I remember what I planned to tell you when I woke up. You are not to go to the biological laboratories to witness the repetition of those American experiments!"

Tori seemed to be completely ex-

hausted. Jay let him rest. Presently Tori's strength came back, and he continued.

"Promise me you will keep out of the biological laboratories."

"Sure, Tori. I won't go near them till you take me there yourself."

"I will never go near them again."

"Oh rot, man. You'll be there tomorrow, busier than ever."

Tori held up his wrist between Jay and the window.

"Look at that," he said. "The first stage."

"Tori, you've had a bad dream and you are only half awake."

Ignoring Jay's matter-of-fact attempt to reassure him, the doomed man continued with his own train of thought.

"It makes little difference now. We have made the fundamental discovery. The glow is controlled. But keep away from the laboratories. I dreamed that you were exposed, although all danger for our own workers is over. In a month the hospitals will be dismantled. There will never be another patient. Probably I am the last."

"You're not going to a hospital, Tori. You are going to stay right here and rest up for a few days."

"The law says I must go at the first sign."

"All right. But that has nothing to do with you. This is just a temporary upset."

"Where is Nara?"

"Gone to her room to rest, I think. We didn't get in till almost daylight."

"See if she is asleep."

Jay found her sitting on the edge of the bed with her face in her hands. He told her what Tori had said.

"He says the law compels him to go to the hospital."

"And he will keep the law."

"Shall I see to it?"

"Yes."

He went into the hall and telephoned for an ambulance. Then he went back

to Tori to see whether he could help him pack his bag. Tori was dressing. He said nothing would be necessary.

"Please don't come with me. Tell Nara I am glad to go. Our nation shall inherit the earth! I regret nothing. We have won. The cost has been trivial."

Jay opened the bedroom door and stood waiting. Tori walked out slowly.

"Tell Nara I am sorry she has lost. But she will soon see that the victory of our people is better for her own ambitions than her success could ever have been. And tell her I have expected all along to join the others. This is not a shock. I knew it must come."

Jay walked with him to the front door.

"Please come no farther. I shall go alone."

XV.

THE THOUGHT of having to give Tori's message to Nara was too much for Jay. For over an hour he sat in the breakfast room, trying to decide whether he should go and tell her, or let her alone. He had just made up his mind to tell her, when she entered. In silence she poured herself a cup of the cold coffee and drank it standing up.

"I have been expecting this," she said, putting down the cup. "But the shock is worse than I thought it would be."

"Better sit down."

He drew a chair for her, and she sat listlessly fingering the cup. In a matter-of-fact tone Jay gave her Tori's message. She made no reply. Then, determined to get it all over at once, he hurried on to tell her of Tori's dream, and the warning to himself to keep out of the biological laboratories.

"If it is any comfort to you, Nara, I think it was the decentest thing I ever heard of a man doing. Your brother knew that I came here to get the better of him if I could, and yet he forgot himself to warn me. As long as I am

alive there is always the possibility that I may undo his work."

"None of us may be alive this time next week," she said. "But he could not have guessed that." Reading the unspoken question on his face, she amplified her statement. "There is no further danger from the glow. They have controlled that. If you did not believe me you must believe my brother——"

"Nara! You know——"

"So we need not fear what has overtaken him—just as he thought he had won. We shall not know who has won, or who is to live, till the fleet sails."

Jay did not ask her to explain. She stood up.

"You will be here all day?"

"Here or just a few steps away. Anything I can do——"

"Please tell any one who asks for me that I have gone to stay with friends. I may not be back for a week. Will you bring my car around to the front? I don't want to see any of the servants."

When Jay drove the car up to the door he found her waiting. As he helped her in he gave her what comfort he could.

"I don't suppose it means anything to you at a time like this, but I want you to know something before you start. What your brother told me has proved everything you have tried to make me see. And if I can be of any use to your side, you can count on me to do anything I can to help you. Your side asks for ten years. You shall have more than that—as long as you like—if I ever get away from here. What you told me last night gave me an idea. While you are away I will try to put through the beginning of it. Then, when you come back, we can go over the rest of it together. Take care of yourself."

"Thanks."

She drove away and Jay returned to the house, confident that sympathizers would soon begin to arrive. The first

person to arrive, however, was a special messenger with a message for Jay.

DEAR JAY:

I forgot to tell you the most important thing of all. For the next two years, possibly the next three, this island will be the safest place for you. As your friend, thinking only of your happiness, I beg you to stay here. If for any reason the scientific staff on the island is disbanded, so that living here would no longer be pleasant, you must not, for any consideration, go to the United States, Canada, or Russia. If you do find that you must leave the island, I advise you to take up your residence for the next three years either in my own country or Manchuria.

I forgot also to thank you for all your kindness to me while I was a student in America. Those three years are the happiest memory of my life.

Wishing you a long and honorable life, I am, as ever, your sincere friend,

TORI.

P. S. Please take care of Nara till she gets over this. Tori.

The news that their commander in chief had been stricken traveled fast to the men in the laboratories. Before long a steady stream of sympathizers began to arrive to leave their condolences—usually one or two flowers with a card—for Nara. Some asked to see Jay, as they had been told that he had telephoned for the ambulance. Whatever these men might have thought of Tori's ambitions, there could be no doubt that they had liked him as a man.

The older men were the first to come. About noon the first of the assistants began to arrive. These deposited their flowers and left without a word. By three o'clock only one or two stragglers every twenty minutes were coming. One of these was Nara's friend Five. The man left his flower with the rest and looked inquiringly at Jay.

"Nara has gone to see friends," he told the man in his own language.

Assuring himself that they were alone, Five produced a card from his pocket and slipped it into Jay's hand.

It was one of Nara's visiting cards, with a penciled message.

"This man will tell the others that you are one of us. In case of danger they will warn you. Destroy this."

Jay struck a match and burned the card before Five's eyes. Apparently satisfied that he had carried out his orders, Five turned sharply and marched away.

A FEW minutes later Sam hurried up with his offering. Jay detained him.

"Do you know if many more are coming?"

"No more. I am the last."

"Then I'll go back to the study with you. There are still some details to be checked over before our work is cleaned up for good."

"Yes, Dr. Jarvis. I am very fresh to-day, because I slept all last night."

"That's good, because we shall probably put in the whole of to-night and to-morrow chasing down your mistakes."

"But I have made no mistakes," Sam protested. "All my calculations check."

"That's what you think," Jay retorted. "I happen to know better. You will have to convince me before I pass your stuff as O. K."

Jay stalked ahead of his abashed assistant in dignified silence. When Jay stopped to unlock his study door, Sam made one last, injured protest.

"But my work must be right, Dr. Jarvis. They have already reset all the generators in the dust factories according to my calculations."

"They have, have they?" Jay demanded indignantly, marching into the room. "And what do you suppose will happen to you when the inspectors discover your blunder just as they give the order to begin shooting the dust into the ships? Don't you know that the fleet must sail next Sunday? They may be able to load the ships in ten hours in an emergency, and they may even be

able to unload them as quickly. But they can't unload them and manufacture a new batch of dust—even if they have all the pulverized raw material waiting in the bins for the final treatment—with the generators *correctly* set, in any ten hours."

Sam received this disturbing prophecy of the consequences of his alleged stupidity with a smirk of smug obstinacy.

"But my work is right, Dr. Jarvis." Jay lost his patience.

"Look here," he snapped. "It means nothing to me if this bull of yours costs you your chance of winning a Nobel prize. Oh, I know what you are going to say," he hurried on, as Sam showed signs of interpolating some superior objection. "Your latest stuff attempting to apply my extension of the periodic law to the problem of the dust has nothing to do with your claims to a prize. They are considering what you did five years ago—your new methods in the relativistic quantum mechanics of electron gases.

"Every one admits that it was first-rate stuff—classic. But what is the committee going to think of you as a mathematical physicist when they learn how you have fallen down on a straightforward application of your own methods—developed, of course—to my extension?"

"A first-year graduate student in physics in any reputable university could do the necessary hack work—and get it right, which is more than you seem to be capable of doing.

"Can the prize committee afford to put its O. K. on you? I think I see them telling the world that you are a worker whose results can be relied on by others in your line—nit! Come on; don't be dumb. Get your stuff out and let's see if we can chase down the mistakes before it is too late. If we work fast we may be able to get the right result and

wireless it to the dust factories before they begin loading the fleet."

"But where am I wrong, Dr. Jarvis?" Sam protested. The attack on Sam's prospects of a Nobel prize seemed to have shaken his assurance somewhat.

"That's what we've got to find out. All I know is that you are wrong."

"But where?"

"How the devil should I know till I've seen your stuff? Isn't it enough that the final setting you got is absurd? Of course, 1287 is implicit in the calculations I gave you to do. That's why I turned the work over to you—I thought you would have brains enough not to jump at the first obvious conclusion staring you in the face. Did it take you all these weeks to plod through the elementary deductions from what I gave you?"

Sam was not to be rushed off his feet. His self-confidence—justifiable—made it hard for him to believe that he was the crude blunderer Jay insisted he was.

"What makes you think 1287 is absurd?" he asked politely but craftily.

"The biological evidence alone," Jay retorted impatiently.

"But what part of it, Dr. Jarvis?"

"Do I have to go into all that? Can't you see? Oh well, I suppose it will be quicker to tell you. I suppose you can remember the intensity—on my scale—of the radiations from the commercial dust? The kind you have been shipping to the United States for the past five years?"

Sam appeared to have forgotten. Jay sighed his exasperation.

"Don't you remember even that? What's the matter with you? Overwork?"

JAY'S diagnosis of Sam's inability to recall the most elementary fact at the root of the dust industry was deliberately ambiguous. Sam could take it either way he chose; either that he was just dull from sitting over his mathe-

matics too long, or that he was about to follow Tori. Sam glanced at his hands.

"I am in perfect health, Dr. Jarvis."

"But you don't remember? Well, I hope you are right. The intensity that has slipped your mind is 1280."

For the first time since Jay began his third degree, Sam's face showed a trace of concern.

"That number is nowhere given in your work, Dr. Jarvis," he exclaimed.

"Did I say it is? But if you will take the obvious steps suggested by the second problem I gave you, you will soon stumble across 1280."

"How?" Sam asked blankly.

"There's no time now to go into all that old stuff. Our biologists have been using the 1280 intensity for a long time in their experiments on fruit flies."

Sam was now following with the closest attention. Jay pushed his advantage.

"Your commercial dust gave them an unlimited supply of the 1280 radiations they needed. Instead of trying to produce the radiations directly by the disintegration of atomic nucleuses, they used what was already at hand—naturally."

"You say they have been doing this for some time?" Sam asked sharply.

"Ever since my extension of the periodic law to cover biological phenomena gave them the hint."

"When did you make such an extension?" Sam demanded excitedly. "I have been looking for it for the past four years."

"And never found it? With my published work to go on? Some of you geniuses are slower than the plodders like me."

"But what is it?" Sam pleaded.

"As you seem to know practically nothing about what you are supposed to be doing, I'll tell you. Then perhaps you will admit that your 1287 may be as far off as I tell you it is."

While Sam hung on his words as if

he were receiving a direct revelation of divine truth, Jay rapidly outlined the new extension of the periodic law to the biological field which, as he had told Sam, was implicit in the work already published. If Jay was a trifle optimistic now and then about the scope of this epoch-making extension, he did stick pretty close to what he knew to be sound, leaving Sam's imagination to fill in the prophecies. To have done otherwise would have been to court exposure; Sam knew too much about experimental facts to be taken in by glowing guesses which, however plausible, might have already been contradicted by some of Tori's own men in the biological laboratories.

So he did not depart very far from what he knew to be reliable, leaving to some less desperate occasion the conservative conjectures suggested by what he knew for a fact. He could not afford to have Sam shying off now; at all costs he must gain the opportunity to scan Sam's work with the diligent assistance of Sam himself.

Jay began by recalling how Mendeléeef, about 1868, had arranged the chemical elements in a table in increasing order of their atomic weights, beginning with hydrogen, and how he found that elements at approximately equal intervals apart in the table had similar chemical properties. By this means, Mendeléeef grouped the chemical elements—hydrogen, oxygen, iron, tin, copper, lead, and so on; in fact the entire eighty-seven known to chemistry in 1865—into "periods."

The elements in a particular period had many similarities. But certain gaps occurred in the beautifully simple arrangement which was summed up in the famous "law"—the properties of an element are periodic functions of their atomic weight. There were no known chemical elements corresponding to the gaps. Mendeléeef boldly predicted that these missing elements would some day

be discovered by chemists, and he even had faith enough in his own discovery to predict from his law how these unknown elements would behave chemically when discovered. In time the missing elements were discovered, and their chemical properties were close enough to what had been predicted to make chemists believe there might be something more than numerology in the law. This "something" was not discovered till the twentieth century, when the electrical constitution of matter—the chemical elements—was more or less definitely established by laboratory experiments.

AS Jay ran over all this ancient history, partly to gain time, partly to make his own latest extension of the periodic law to biological phenomena less of a shock to his assistant, Sam showed signs of evident impatience.

"But, Dr. Jarvis, every high-school student knows all this," he protested. "And the elementary text books put it much more clearly than you do."

"Tell me something I don't know. I am going over all this kid stuff because you think you have understood it since you were fifteen. You haven't. Otherwise you could not possibly have missed my biological extension. Let me remind you of some more high-school stuff. Then see if you can get my extension by yourself."

He next recalled how, when the early workers of this century made their first crude—but brilliant—theory of the electrical nature of matter, resolving the atoms of the elements into minute "solar systems" with a "positive" sun, or "nucleus" of electricity, and a family of negative particles of electricity—"electrons" revolving like planets in their orbits around the nucleus, it was found more suggestive to revise Mendeléeef's table in accordance with the planetary models.

Instead of arranging the elements in

increasing order of atomic weight, they now arranged them in order of increasing amounts of positive electricity in the nucleus. The resulting scheme preserved the periodic recurrence of physical and chemical properties. More important, it removed certain irritating exceptions to the original form of the "law," and brought all the elements then known into line, without exception. There still remained a few blanks for undiscovered elements. As some of these were discovered, they fitted in exactly into the places where they had been predicted.

Going on parallel with all this work was another kind of physical investigation—that instigated by the discovery of radium, which seemed to disintegrate, of itself, spontaneously, and to break down into simpler elements. This, in a way, was something like the dream of alchemists—whereby it would be possible to change one element into another, say mercury into gold, or vice versa.

Theoretically, there was no insurmountable difficulty in changing one element into another. All that would be necessary would be to find some means of modifying the structure of the atoms of the element by knocking out some of its electrical particles, or shooting more particles into it. This "all" however proved to be much more difficult than it sounded, and it was only about 1920 that it was first done. Since then a vast science had grown up around the problem, and many artificial disintegrations—transmutations—of matter had been effected in the laboratory.

Jay recalled the earlier methods of bombarding the atoms to be disintegrated with streams of high-speed alpha particles—the nucleuses of helium atoms—generated by hard X rays, the use of cosmic radiation, and other well-known processes.

"But you have said nothing yet about the biological aspects," Sam complained.

"Coming to it now. You remember

the first work on fruit flies with X rays?"

"Muller's? Who does not? The most important advance of centuries in biology."

"Glad you think so. I agree. What do you make out of it?"

"Why, that it is possible, by human intelligence, to change the heredity of plants and animals."

"Of bacteria, for instance?" Jay suggested.

Sam was not to be caught napping.

"It might be possible," he admitted.

"But it has not been tried."

"Hasn't it? That's all you know about it. Haven't they told you what your own dust does?"

If they had told him, Sam was not yet ready to admit the fact, and he let Jay continue. Jay recalled how Muller had succeeded in modifying the germ cells of fruit flies permanently by exposing them to X rays, so that the offspring of the flies inherited permanent deformities—some might have called them eugenic improvements—of wing, eye, leg, or bristles, which they passed on to their descendants. The X ray had, as it were, speeded up evolution, or quickly turned it into unforeseen channels never contemplated by staid old Mother Nature. Man had at last succeeded in tampering fundamentally with life. Some of the X rayed flies were more prolific than their natural parents; others were completely sterile.

AFTER this great step forward, it was easy and natural to take the next. As the X rays are only one of many kinds of radiation of short wavelength why not see what some of the others would do to the germ cells of plants and animals? Perhaps they too would induce living matter to produce freak offspring, modifying permanently the original species, either for better or worse.

But as radiation in some of its forms

is given off from one element when it is changed into another, and as such radiation is penetrating enough, and of sufficiently short wavelength to be able to affect the minute structure of living cells, why not expose the flies directly to the radiations emitted from experiments on the disintegration of matter, whether by X rays, cosmic radiation, bombardment by protons, or other means? The results were highly gratifying; species of insects and plants were permanently changed.

This, and another discovery, Jay declared, had given him his own idea. Till early in 1934, it had been supposed that ninety-two different chemical elements were all that could possibly exist. If there were a ninety-third, the periodic law predicted that it would be so violently radioactive—more so than radium itself—that it would quickly break down into simpler elements. It was not likely to occur in nature.

But, improving on nature, Fermi created this ninety-third chemical element by bombarding uranium with alpha particles—the nucleuses of helium atoms. If a ninety-third element could be created artificially, why not a ninety-fourth, and so on? And if so, how would these man-made elements behave?

Taking what was known of the electrical structure of matter, it was possible to extend the list of ninety-two known, natural elements plus the one artificially created new element, as far as one liked—theoretically.

And the same evidence as that which had led to the modern interpretation of the periodic law—giving a rational, simple account of the machinery or structure which causes the elements to repeat their properties at approximately equal steps—this same sort of evidence would carry the law on to the new elements created by human beings.

"That is all contained in your first published work," Sam reminded him with a superior sniff.



Tori took the glass Jay handed him and slowly raised it against the light of the east window, to his lips.

"Glad you recognized that much. And you recall how the radiations—emanations, call them what you like—from radium, actinium, and other radioactive metals have been used to alter species of plants and animals? You do? Then did it never strike you as a rather worthwhile thing to do, to try to hook up the biological effects of the elements—the ninety-two known up to 1933, and any

others to be discovered beyond—with their atomic numbers in the series of all the elements?

"If element Number 92 has strikingly marked biological properties, why shouldn't elements numbers 184, 276, and so on have similar properties—provided we can create them? Why shouldn't the elements near the beginning of the known list—say those num-

bered 12, 16, 20, have any effect such as radium has on living matter?"

"Because they are not radioactive," Sam informed him in a superior tone. "Any radiations they may emit in their almost infinitely slow disintegration would be insufficient to affect the most delicate microbe."

"I didn't really expect you to tell me," Jay remarked caustically. "My question was rhetorical, for the purpose of bringing out my next point. As you reminded me the other day, the elements of the so-called rare earth group are practically inert—nobody could hope to make a fly breed freaks by exposing it to the feeble radiations of such inactive elements."

"The same holds for 12, 16, 20, and most of the rest. But, you remember, I asked you to look up the literature on the induced activity of those elements. Shoot enough high-speed alpha particles, or other penetrating radiation into them, and they will begin emitting characteristic radiations of their own, breaking down into elements farther down the scale, and less active than themselves, as they do."

"What specific effects will these radiations have on plants and animals—say on bacteria or fruit flies? Can you predict? Evidently not, or you would not have made the bull you have. My biologic extension of the periodic law covers the whole range of elements—those occurring in nature and those created in the laboratories. Like Mendeléef's, it also predicts what will be the properties of elements not yet created, and it does this for the biological properties of the elements."

"It enables us to say with accuracy what the radiations, natural or induced, from any one of the elements, naturally or artificially created, will do to living matter. For example, my extension enables me to say whether the radiations from a particular element will make bacteria or fruit flies more

prolific, or less; whether it will sterilize them; or whether it will cause them to produce normal offspring or deformed freaks with the power to pass on their deformities to generation after generation of their descendants.

"In other words my new extension does for the biological properties of matter what Mendeléef's periodic law did for the physical and chemical properties and what my first extension did for all the new elements possible beyond the ninety-two known up to the spring of 1934."

"Putting the two together, I can predict with reasonable accuracy what a mixture of given elements, when applied as an ingredient of a fertilizer, will do to the soil, to the plants growing in the soil, to the bacteria living in the soil and making normal plant growth possible, and finally to any animals living on top of the soil. Quite extensive, you see."

"What would you say if I could tell you that one of the new elements produced in the laboratories emits radiations numbered 1280 on my scale, and that such radiations greatly increase the fertility of fruit flies?"

"I should ask what is the number of this new element on the atomic-number scale in common use," Sam replied.

"To that I should have to tell you to use your eyes, and really study that first problem I gave you. The answer is implicit in the solution of that problem—if you do it right. You missed it?"

SAM was forced to admit that he had. Jay was almost ready to go to work on Sam's calculations.

"This ridiculous stuff you have given the dust factories is due to a similar oversight; 1287 is out of the question. Do you know what the specific gravity of a dust made from pulverized silicon dioxide—common sand, say—when irradiated with 1287 would be?"

"Yes," said Sam. "Does your law give you that, too?"

"Of course."

Jay plunged. If he guessed right, he had Sam trapped. If he missed it, he would have to wriggle out somehow. He gave Sam the specific gravity of the sample of the latest improved dust which Five had given him. Tori's staff, Jay reasoned, could not have had time to perfect a further improvement; so in all probability Five's sample was the same kind of dust as that irradiated with 1287.

Sam's eyes opened wide.

"Does it check?" Jay asked nonchalantly.

"Yes, Dr. Jarvis."

"Then perhaps you will believe that I know what I am talking about."

"Does your law also give you the biological effects of irradiation with 1280?" Sam inquired cautiously.

"Of course. Why not? The effects are precisely those which have been observed in the United States for the past three years—ever since we began using the dust. This includes, of course, the remarkable increase of nitrogen-fixing bacteria in the soil, which has been such an important factor in the increased fertility of the soil. The radiations from the fertilizing dust have greatly increased the fecundity of the bacteria—I suppose you could put it that way—among other beneficial effects."

"But how have I blundered, Dr. Jarvis?"

"If you mean what particular mental aberration is responsible for your mistake, I can't say. Possibly not taking any exercise is responsible."

"I meant, what is the nature of my blunder?"

"Oh, that's easy. The glow from the dust when first activated has been troubling your men for a long time, hasn't it? That was just excess radiation escaping as the unstable atoms of the first highly active form broke down into a more stable, less active form. The problem of your staff was to get the first form in a stable state, so that

the glow would not appear immediately, but would be released later, by a sort of trigger action.

"Certain atoms would store up the radiations emitted by others; when the storing up reached a sort of saturation point, the atoms of the elements concerned would begin shooting off radiation spontaneously—like the detonation of a high explosive. As these atoms released their stored-up radiation, the glow would reappear. Your problem was to delay the release of the glow till the desired time—say six months or a year after the shipment of the dust.

"Well, you blundered when you told them 1287 was the proper thing to irradiate the pulverized sand and stone with. The dust will begin glowing like hell before the ships transporting it are halfway to their destinations. Then there will be the devil to pay. For one thing the crew will all suddenly go as tired as lumps of half-melted jelly—just like those poor fellows in Hospital Ten.

"You know what the full blaze of the glow does to unprotected flesh and bone. After that—say in six months or a year—the dust will be fit for fertilizer. Come on; we've got to see if we can find what they should use instead of 1287 before they begin shooting the dust into the hulls."

Sam left the room. Confident that he had won the first round, Jay waited patiently. In less than ten minutes, Sam was back with an armful of papers and charts.

"Spread out the first of it here," Jay directed, sweeping the litter off his own desk. "Go through it with me a step at a time and we'll soon run down the mistakes. Hustle; we haven't an hour to lose."

Then began for Jay seventy hours of the most agonizing mental hard labor he had ever imagined. Meals gave no relief, as they worked while they ate, and the brief snatches of sleep were nightmares. But Jay learned in those

seventy hours what it might have taken him seventy years to discover by himself—namely, the secret of the dust.

XVI.

BY Saturday morning Jay was completely exhausted. Sam seemed as fresh as ever. At last the arduous job of checking and criticizing Sam's work was finished. Jay now had learned all that he wanted to know. If given a free hand, he was now capable of directing the manufacture of the fertilizing dust, from the first shot of dynamite to bring down the rock, to the last setting of the irradiation apparatus. Incidentally, he had learned—in passing—what General Green had wanted to know.

The new metal in the enemy tanks was common steel with a minute trace of one of the new elements created by Tori's staff. Moreover, he had now a clear idea of the enemy's strategy. His grasp of their probable—indeed certain—campaign in the United States, Russia, and Canada, convinced him that the urgent need of the moment was to prevent the dust fleet from sailing; it was already taking on its cargo. Failing that, he must, somehow or another, get word to Senator Atkinson. He pushed back his chair.

"You win, Sam."

"I have made no mistake?"

"Not a slip anywhere. A good thing too, for you, I should say. It would have been too late now to stop the loading. Well, I'm going home to bed. Clean up all this mess."

Instead of going straight home, he dropped in at the clubhouse. Small knots of men were standing about discussing the tragic fate of their commander in chief.

"How is he?" Jay asked an older man.

"As could have been expected."

"Can't we do something?"

The man gave him a long look.

"He will not take the easy way out,

as many of the others have. And to open a door for him without his knowledge would be to rob him of his heroism."

"But," Jay protested, "it isn't against the custom of your country."

"In defeat, no. But this is a victory, not a defeat. He is living till the dust fleet sails. After that I believe he will go quickly and naturally." The man lowered his voice. "Are you going home?"

Jay nodded, and the man turned to the friends with whom he had been chatting.

"Please do not wait for me. I am seeing Commander Jarvis home. He has been working rather hard the last few days."

Their startled, sympathetic looks sent a chill up Jay's spine. Once outside, Jay's new friend set his mind at rest.

"You need not be alarmed. I said that to give me a good reason for coming with you." They walked on in silence for a few moments. Then the man remarked quietly: "Nara is not coming home again."

"It would be too much for her, I suppose."

"Yes, but that is not the main reason. She has been working, and there is a great deal to do at the last moment."

"Oh."

"There is also the danger," the man continued.

"What danger?"

For answer, Jay's companion produced a wrist watch from his pocket and slipped it into Jay's hand. Surreptitiously inspecting it, Jay recognized the watch as Nara's.

"Open the back of it," the man suggested.

Jay did so, and read the message on the scrap of paper which he saw.

"Jay. Trust this man. Little finger left hand injured; stiff. Nara."

Jay glanced at his companion. The man silently exhibited his left hand.

The little finger was withered and crooked.

"What danger?" he repeated.

"If we are attacked, the buildings will not be safe."

"What about Tori's house?"

"Not safe either. It was built before the new elements were used as alloys in the steel. Since then our military chemists have developed new high explosives."

"Have you warned the others?"

"Those on our side."

"But the rest?"

"Why should I? There is no victory without casualties."

"That's what Tori said the day I arrived. Now he's a casualty himself."

"We must all take our chance," the man remarked.

"No doubt," Jay retorted. "But, not being a fatalist like most of your people, I don't believe in going out of my way to take unnecessary risks. What are you going to do yourselves? You and the others?"

"Stay here."

"Near the buildings?"

"Why not? If we are to go, we shall go. We cannot tell our fellow workers on the other side. To desert them in the hour of danger would be against the traditions of our people."

"But you are on the other side—Nara's side. Aren't you an internationalist?"

"In everything that affects international good will and peace. In other matters I am one of my people. Not all of our traditions are to be condemned."

"That's for you to say. What about Nara?"

"She must stay within easy reach of the wireless station till the fleet sails. She thinks you had better join her there. If you drive over and sit on the cliff where you and she sat the other evening she will join you. The chauffeur will drive you."

AST—10

When they reached the bungalow the man shook hands.

"Good-by. I may not see you again. I hope your work has been successful."

"It has. Good-by, if you won't reconsider and come with me."

"Thank you, but I prefer to stay with the others."

"Any message for Nara?"

"I think not. She must decide for herself what she will do if our side wins."

JAY found the chauffeur and told him to drive over to the bay by the wireless station. Dusk was falling as he walked through the stunted heather to the cliff. There was no sign of Nara, and he sat down to wait for her.

It was dark long before he heard her footsteps.

"Are you there?" she called softly.

"I've been waiting about four hours."

"Sorry, but I was busy. I've brought you some supper."

"Thoughtful as ever, I see. Thanks. Sit down and help me eat it."

"I had mine long ago." She remained standing, gazing out over the dark, moonless sea. "By the way, what time is it? You must have my watch."

"Almost exactly eleven thirty."

"Then I may as well sit down. Half an hour— We shall know whether we have won or lost before daybreak."

"When does the dust fleet sail?"

"In half an hour—at midnight."

They sat silent for a few moments. Nara seemed tired.

"This is the first time," Jay remarked, "I have seen the ocean around this island without at least two battleships in sight. What's happened to the patrol?"

"All but two—they must be on the other side now—are patrolling the islands where the dust is being loaded. The whole fleet always draws in toward the archipelago during loading week. That is, all except a few left on duty at particularly important places like this.

But the whole fleet could get here in less than three hours if necessary."

"I see. They're afraid the dust plants may be raided while the irradiation is still going on."

"Yes. Did you succeed in putting through the idea you spoke of just before I drove away the other morning?"

"Completely. I know everything about the dust now—both the old brand the United States has been using for the past three years, and the latest improved kind being shipped to-night at twelve."

"Did you discover what the effect of the new dust will be?"

"Yes. Or rather I got it out of Sam indirectly. I doubt whether he has practical common sense enough to foresee the inevitable consequences of using the improved dust as a fertilizer. Sam is nothing but a simple-minded mathematical genius. He's like a chemist inventing a one-hundred per cent deadly and almost secret gas—secret for long enough to wipe out half a nation—without looking ahead to see the possible consequences of his scientific work. So with Sam. I don't believe he has ever suspected the use the other side intends to make of his work. Otherwise he would never have done it until he was sure his great discoveries would not be abused by fanatics."

"Most of them are like that." Nara sighed. "Clever boys playing with deadly weapons that stupider boys will steal from them. You remember what you promised me?"

"To give your side ten years?"

"You said we should have more."

"As long as you like. As I told your brother once, we humans may be crazy, but we are not crazy enough to make a universal suicide pact and stick to it. There is an extremely simple way of taking the deadly kick out of the dust."

"Chemically?"

"Nothing like that. No scientific attempt to make it safely usable would

accomplish anything. One nation could manufacture the improved dust secretly and sell it at a loss, or give it away, to its competitors. No; the way suggested by common sense beats the scientific—for once."

"What is it?"

"Simply this——" He stopped abruptly. "Do you hear anything?"

"What time is it?" she asked.

The moon had risen. Jay looked at his watch.

"Seven minutes to twelve."

"Yes, I hear it."

The far, deep hum from over the ocean was now plainly audible.

"What is it?" he asked, standing up.

She also had risen.

"The beginning. So far we have not failed. The wireless men have kept their oath and called the planes. I wish I could count them."

The gigantic bombers were now plainly visible against the pale stars in the dim moonlight.

"Count them!" she cried. "Quick!"

As the fleet was flying in massed formation Jay had no difficulty in counting the bombers.

"A hundred and forty-three."

"There should have been two hundred and fifty! The rest have deserted and gone over to the other side."

While she was speaking, fifteen detached themselves from the main fleet and roared directly over the spot where Jay and Nara stood.

"Where are they going?" he shouted, to make himself heard.

"Inland. The laboratories and hospitals. Every building on the island."

The main body, now a hundred and twenty-eight strong, continued past the island. As the roar of their motors dwindled in the distance, Jay thought he detected another drone approaching from over the sea. He was right.

"The deserters," Nara said quietly.

"It looks to me as if there's going to be one hell of a scrap somewhere," Jay

remarked. "This second lot is probably bringing pursuit planes with them, too. Shouldn't mind being closer."

"What is the time?" she asked.

"Exactly twelve."

"Look over there," she directed, pointing to the spot on the horizon where they had watched the glow and had seen it go suddenly out forever. "If our men in the navy keep their oath, the first battle will start there."

THE OPERATOR on duty in one of the United States naval wireless stations sat rigidly at the board, bored by the routine of listening for messages worth recording. His relief, just coming on duty, was preparing for his own spell.

"Anything doing?" he asked.

"There's been a lot of chatter in foreign code off and on."

"Get any of it?"

"Not a thing. Seems to be a new code. First time I've heard it. Here, it's your turn."

His back suddenly stiffened, and he held up his left hand. With the right he was already busy taking down the message. The relief strolled up to the board and read what the other wrote. Before the message was finished he was reaching for the telephone.

"Put me through to Admiral West at once. Important message from Captain Lewis."

It was some minutes before the long distance call was completed. Admiral West was just about to lie down to take a much-needed rest when the telephone in his room rang. With an exclamation of impatience he took down the receiver.

"Admiral West speaking."

"Message from Captain Lewis, on board battleship *Texas*." The ship's position followed. "Urgent."

While West listened to the short sentences he almost saw the scene they described. The grand fleet of the enemy, summoned a few hours before from its

base, was annihilating itself. Called to quell serious mutinies aboard the cruisers and battleships patrolling the freshly loaded dust fleet, the grand fleet had rushed into action only to fall upon itself at close range in an indescribable fury.

The patrol battleships had already wiped one another out before the fleet left its base, after having shelled the ships of the dust fleet, sending them to the bottom. Captain Lewis inferred from what was picked up in his wireless room that the mutiny affected all the dust plants, although the *Texas* could only observe the battle in the vicinity of one, the largest.

The enemy air fleet was also destroying itself. The mutineers of the air were bombing the dust plants; the loyal forces were attacking the mutineers recklessly, seeking to protect the plants, but the mutineers had accomplished their purpose and were now fighting to escape.

Captain Lewis was now asking for orders to be wirelessly to him. An American citizen, by the name of Jay Jarvis, had sent out a message from an enemy wireless station which had given its position, asking any American ship in the vicinity to pick him up. Should Lewis go after him? The *Texas* was only a few hours' run from the station.

"Yes!" West shouted into the telephone. "Wireless him to get Jarvis off at once."

The Admiral next called up Senator Atkinson. When the senator had taken in the mere magnitude of what was happening, he in turn called the President, to whom West repeated his news, forgetting in his excitement to mention Jay. He was just about to ring off when he remembered the order he had wirelessly Captain Lewis.

"I must stay here where further messages will be sure to reach me immediately." He then detailed the order relating to Jay. "That was all right, I suppose? The matter is evidently

urgent, so I gave the order on my own responsibility."

There was a commotion at the other end of the wire.

"Don't you realize that sending the *Texas* to that island to rescue an American citizen without their permission is tantamount to an open declaration of war on our part? Have you taken leave of your senses?"

"Suppose it does amount to a declaration of war? What of it? Their ships are sunk and a large part of their air force destroyed. The dust fleet is at the bottom of the sea. They're through, commercially and as a naval power."

"If your action leads to an incident, you will be held responsible."

"I am ready to take the responsibility. I was right last time, and I am right this. Didn't I tell you that girl was worth more to us than a whole fleet of battleships?"

The receiver at the other end was hung up with a bang.

JAY AND NARA followed the progress of the battle for twenty hours. Only the distant flames of the fight in one sector were visible from the island, far across the water, but the air reverberated continually from salvos far below the horizon.

A runner from the wireless station brought them the news of the sailing of the grand fleet, and they returned with him to the station, where messages from distant stations on their side, dotted all through the archipelago, and calls from battleships in action and maneuvering planes kept them informed of the fluctuating course of the revolution. The wireless station had contributed its share of casualties. The three operators not on Nara's side had paid for their loyalty to their government with their lives, while one of the three revolutionists had been shot in the surprise attack to capture the station.

On the battleships, in the dust factories, on the ships of the dust fleet and in the air force, those who remained loyal to the government were given the chance to surrender, but none took it. Both sides recognized the outbreak from the first as a fight to the finish, and both sides fought to the finish.

Outnumbered by about four to one, the government ships and planes were at last totally destroyed. The victors were fit only for the scrap heap. At the usual cost of merciless bloodshed a new nation had been born.

But if thousands of lives had been sacrificed to bring the new nation into being, its birth saved at least three hundred million from death by starvation and unnatural disease.

The trembling of the air grew less perceptible; the revolution was drawing to a close. Nara tossed aside the last scribbled report which the operator had handed her.

"My brother's dream is ended," she said. "I am glad he died before he knew that he had lost."

"What will you do now?" Jay asked.

"Stay here for a few days to see if any have survived and need assistance."

"And then?"

"Go on with my work. It should be easier now."

"Well, this seems to be the time to begin keeping my promise to you. Do you know what would have happened if that dust your men have just sent to the bottom of the sea had been used as fertilizer—as was planned by the other side?"

"I have learned something during the past four days from the men of the scientific staff who were on our side."

"Then see if it checks with what I inferred from Sam's work. This improved dust that was to have been used wholesale in the United States, Canada, and Russia would have lain inert in the soil for about six months—possibly less. Then the delayed trigger action of the

activated elements in the dust would have come into play suddenly, releasing radiations lethal to all soil bacteria.

"When that phase was completed, and the soil sterilized, a more penetrating radiation would have been emitted from the further decomposition of the activated elements. This would have destroyed all the remaining organic matter in the soil, breaking it down into volatile gases. Still decomposing into elements yet farther down the scale, the dust would have continued to emit harmful radiation—harmful because they would disintegrate the atoms of nitrogen and phosphorus in the soil.

"The result would have been a complete sterilization of the soil. For years, possibly a century, it would be useless to attempt to bring this soil back to the point where it could nourish even the rankest weeds. It would be dead itself and incapable of supporting life.

"Few, I suppose, would have survived to see the beginning of the universal starvation. The first outburst of penetrating radiation from the disintegrating elements would have attacked every animal living on the soil. The entire population of the United States would have gone the way the laboratory workers here went before they controlled the glow. And so for Russia and Canada.

"The strategy, of course, is simple. If one nation wishes to dominate the world, without competition from progressive rivals, the most effective way is to eliminate the rivals and reserve enough land elsewhere for national sustenance and expansion. There would be plenty of land in Australia, Africa, Asia, and South America for one dominant people after the United States, Canada, and Russia were out of the running for at least a generation. Does that check with what your friends told you?"

"Essentially. They told me more details—they don't matter now. You

could teach the Americans how to manufacture the dust?"

"Yes."

"Will you?"

"If I ever get back to America."

"Would any one but you be likely to discover the secret within the next ten years?"

"That's hard to answer. But judging by the merest superficialities of the work that was done here, I should think it very improbable. A basic discovery—the kind that is made only once or twice in a century—gave the men here a tremendous start over the rest of the world in creating new chemical elements. Further discoveries, almost as important, gave them a flying start on all the problems of inducing and controlling artificial radioactivity. Even knowing something of this work, other men would probably take at least ten years to duplicate it on a commercial scale."

"So the danger of another insanity like my poor brother's overtaking the world in the next ten years is small?"

"Negligible, I should say."

"Yet you plan to teach them how to make the dust?"

"Why not? Properly used it is a blessing if ever there was one."

"But will they use it properly?"

"That remains to be seen. If one gets a monopoly, probably not."

"Then what do you propose?"

"Don't you see the obvious way out? Tell them—everybody—*everything*. Let every nation manufacture its own supply. Tell them all how to make the dust deadly to all life, plant and animal. To let one nation rediscover the secret ahead of the others would be fatal. If all know how to create the lethal form of the dust, the majority will see to it that the minority does not manufacture that brand, but sticks to the safe kind."

"Do you really think so?" she asked.

"No. That is where you come in. If your side can't supply the rest of the solution before the majority has time

to go completely insane, we might as well acknowledge ourselves beaten right now. Well, do I get back to America, or don't I?"

"You shall. I knew you would be reasonable, so I notified the operator to broadcast a call for an American ship to come and take off an American citizen, Jay Jarvis."

"You've kept your word," he said. "Now I'll keep mine. As soon as the operator picks up an answer, I'll begin. In the meantime I'm going to catch a nap, and you had better do the same. You might tell the operator to wake me when he gets it."

JAY could not judge how long he slept when he awoke to find Nara standing over him. She had been shaking him.

"The *Texas* will be here in about five hours to take you off."

"Thanks. Then I can begin. Your operator can spell out my English a letter at a time as I write out my stuff. Two hours from now every nation in the world will know as much as I do about the manufacture of the dust, both the beneficial and the lethal varieties. It may take them ten years to produce either in commercial quantities, but all will know how.

"Tell your man to give some sort of a stand-by or call that will make every high-powered wireless station in the world prick up its ears. Then he can begin broadcasting what I feed him as fast as I can write it out. I suppose he can read English script?"

She nodded, handing Jay a pad and pencil.

"Then here goes. When he has put it on the air once, he can repeat it—all.

Enough will be listening the second time to pick it all up."

"We have won." She sighed.

Among the first to hear of that astounding broadcast was Admiral West. From him, before many minutes had passed, Senator Atkinson heard the news. Leaving the broadcast to the experts, the senator hurriedly called his colleagues together for a conference. They came on the run.

Gloomy Winters muttered something about shutting a stable door, and lapsed into silence. Secretary Redding mourned the willful scuttling of a world monopoly and glared accusingly at Admiral West. General Green compressed his lips very tightly when word was brought that the secret of the enemy's new tank metal had just been broadcast to the world. Senator Atkinson remarked that he never had believed in women messing in politics or espionage. "That girl" had turned their observer's head; they should have sent an older man.

The conference was interrupted just as the second broadcast began coming in clear. A messenger from the White House brought a note of regrets from the President that he could not attend the conference, as he felt the need of a swim. The note concluded with two enigmatic sentences. "All's well that ends well. I beg Admiral West to accept my profoundest apologies for having underestimated his abilities as a statesman, and I now ask him to convey my sincerest appreciation to Count Tori's extremely talented sister."

"I told you that girl was worth more——" The admiral did not finish.

"Shut up!" the senator roared, stamping from the room.

THE END

Two Years!

Sometimes a milestone is something to regret; sometimes it stands out like a beacon light against a starless sky.

If we have been remiss, have lazed along and passed by our opportunities, the milestone looks like a threat of destruction.

If we have done our best and come down the home-stretch with colors flying in the breeze, we welcome the milestone that marks another lap gained in the race toward our final goal.

With this issue, the NEW Astounding Stories completes its second year under the Street & Smith banner. I have every reason to be proud as I look back at the progress we have made. You have contributed your full measure of support and you have reason to feel that our progress has been due to our wholehearted coöperation. You and I, together, have come a long way in the last twenty-four months. We have seen the sickly interest in science-fiction spring up into a new and vibrant life. And we know that we are largely responsible.

You have talked freely to me, and I have listened. I have talked to you, through these pages, and you have been fair and square in your reactions. That is the spirit of science and I like it.

We've had our lighter moments, devoted to platinum staples and chewing gum—and we've had other moments devoted to serious scientific discussions. Such a balance gives a healthy interest to our reading circle.

New science groups have sprung into being in the last two years; groups of normal, alert, thinking people who will, one day soon, be the leaders of all scientific progress in America, and the Dominion. Our group of readers in Great Britain is growing noticeably, and that is good.

Our contacts grow closer. Three of our most ardent fans dropped in one night last week, from Chicago, and we had a very pleasant chat of pasts and futures.

Two years of such intimate coöperation as we have had, can build fierce loyalties. I want to feel that I have yours.

There are many steps on our program not yet accomplished. I need your loyalty in order to complete our plans for this coming year.

I feel that you may be proud to introduce this issue to your friends. Help me once again in this fall drive.

I appreciate what you have done in helping me to place Astounding first in its field. But that is a comparative value. None of us, being true scientists, can be satisfied until our values are compared with the "absolute."

So I'm asking once again that you get into the double harness with me, and pull together. Introduce new readers to the most fascinating fiction in the world—until we have added fifty per cent to our present number.

This third year, just ahead, must be the greatest year in the history of Science-fiction. Are you with me?—The Editor.



Dumb and Marvelous!

Dear Editor:

You continue to top the list. The June issue was excellent, with minor blemishes. *The Invaders*, *The Orb of Probability*, and *Alas All Thinking* were first class; *Murray's Light* and *Blue Haze on Pluto* follow closely; *Plane Compass*, *Electrolytic Onslaught* and *Into the Depths*, a little behind, with *Fog* a poor wind-up.

In *Electrolytic Onslaught* the people were both dumb and marvelous. "Dumb" because it never occurred to them to have a look outside the walls, and truly marvelous because they could stand the pressure of 5,000 feet of water in suits that would puncture with a knife. Did you pass that one with your eyes open or was it a mistake? Looking forward to *The Son of Old Faithful*.—W. A. Gibsen, Rowanbank, Bathgate, West Lotham, Scotland.

A Call to Arms!

Dear Editor:

Announcing an ultranew organization—the Anti Wire Staples Agitators' Association. The purpose of this organization is to do away with such inane and purposeless organizations as the SPWSTFM and the IAOPUMMFSTFPUSA. We have long realized that these respective organizations have no other actual purpose than putting before the science-fiction public the names of an otherwise apparently insignificant minority—chiefly Bob Tucker and Don Wollheim.

But why should the space and money of *Astounding Stories* be wasted to publicize such idiotic individuals as the aforementioned?

This space could be used much more advantageously in the featuring of a science column or even scientific disputes of the readers.

To prove that we, the originators of this organization, are not doing this merely for personal publicity, we have decided to substitute numbers for names. Each person desiring to join shall receive a number.

Now, let's show people such as Wollheim and Tucker that they can't monopolize the readers' section of our magazine. The only way to make

these poor misguided ones halt their dumb proceedings is to let them realize that they are operating against the will of the science-fiction majority.

Let's make Brass Tacks function as it was designed to function—to show the sentiments of the reader and to promote corrective criticism—not to aid in securing personal publicity. Let's get behind this organization and wipe out this impediment to science-fiction once and for all! All interested and willing to join, write to D-456, 3399 Fulton Street, Brooklyn, New York.

Mystery!

Dear Editor:

After about another of reading *Astounding Stories* and diligently digesting it (Brass Tacks and all), I have formulated new theories, conclusions and what nots, one of which I am airing now. To air only a few would take a whole volume of the magazine, so, perforce, I have to restrain myself.

Some one has said that there is "science" fiction and scientified fiction. Which, is which I haven't bothered to figure out, because I have my own names for the two types of stff.—fictionized science and scientific-fiction. Most of your stories are the former. Now, I like science and am always keen to learn something new, so I enjoy fictionized science very much. But, much as I enjoy this, I infinitely more prefer science-fiction—the good old hackneyed dyed-in-the-wool wild west or adventure type, with the action taking place on some queer planet or dimension, full of weird animals and things. And if the hero finally marries the local princess, so much the better. Weinbaum's *Flight of Titan*, and *Parasite Planet* are just the very berries of another kind of stff. Boy! that man knows how to write, too. I also have a lot of time for Frank Belknap Long, Jr.'s fancy little stories. Reading them is a sheer delight. As for Miss Moore's extravaganzas, why haven't there been plenty more?

You don't have to be a Sherlock Holmes to determine that I am shouting for the *Planetecr* louder than anybody else. If the *Planetecr* means no semimonthly *Astounding*, then I hereby

grant you leave to let *Astounding* remain as it is. In fact, now that all the science-fiction magazines—to my best knowledge and belief—have gone in for fictionalized science, I'll utter the following blasphemy: If there is no room for both the *Planet* and *Astounding* Stories, let's have the *Planet*, even though *Astounding* Stories is the best sf. magazine on the market.

For eons, I have moaned, with many others, that sf. is an not-what-it-used-to-be, but for a long time I could not think what was wrong. The stories are good; plots, new subjects, original theories, are sometimes so unscientific and so irrelevant that the ensuing correspondence is lightly amusing. And now it is all as clear as mud; in the good old days we were fed up with science-fiction and now it is fictionalized science.

So, come on, you brother moaners, back me up! I've solved the mystery for you! Join the METROSLF (Moaners for the Return of Scientific League), and if the editor prints a "Hawke Carse" and a "John Hanson" in the very next issue of *Astounding* Stories, we shall declare a temporary stasis of violent action.

If he gives us the *Planet*, we'll elect him as our president, secretary, and everything else except treasurer, because that's the job for me. But if he doesn't, our first move will be to shriek, whistle, hiss and growl our war cry—*D. deWoronin, Box 780, Bulaways, S. Rhodesia, Africa.*

On Promoting Science!

Dear Editor:

Having finished the July issue of *Astounding* Stories, I submit a few comments. Those who beg for less science in the stories must surely be satisfied with this issue. The only story which pretended to scientific explanations was *The Avator*. In my opinion, the best stories in the magazine were *The Far Way* and *Liquid Power*.

But by far the most interesting part of the issue was the Brass Tacks department. It contained more science than all the rest of the magazine—if you call the Van Kampen argument science.

It seems that Mr. M. I. Leffing has successfully ended that "tempest in a teapot," however. It seemed rather a waste of space. And the Tucker-Wollheim tangle is even more so. Is this some new and exceedingly polite way of saying nothing?

To those who cry for less science in a science-fiction magazine: I suggest that they subscribe to an adventure magazine.

The unsigned letter, headed "The Experimental Friend," interested me. Am I wrong, or was he insinuating that he discovered the secret of artificial gravity? And the letter from Frederick G. Hehr also gave the impression that the writer knew more than he was telling. If I am wrong, stop me, Mr. Hehr. And, although I devour the superscientific stories, I also like a well-written fantasy. To a certain extent I agree with Ed Camille on this point. But I have found that the only authors who consistently turn out good fantasies are Jack Williamson and the master, Abraham Merritt. I notice that almost every reader who suggests a new author includes Merritt in the list.

I like Dold's illustrations, and I like the colors of Brown's covers, although he does not have the imagination necessary to completely satisfy.—L. M. Jensen, Box 35, Cowley, Wyoming.

Appearances Count!

Dear Editor:

What's come over you? You've gone up 50% since last month! Keep it up and you'll soon be at the top of the pile. But maybe I was a little harsh last month. Brown's cover was excellent, although I do like Paul's brilliant ones better. Dold is better; he's not making his drawings of plain scenes so fantastic but his figures still

aren't very good. Marchioni is still a second-class artist.

Son of Old Faithful was good, but it wasn't written well—just plain everyday sentences. Aside from that, it was carefully worked out, and a sequel should be forthcoming. *Liquid Power* was good also, but the mystery ship seemed a little bit too perfect, as if a fairy had popped up and given Don a wish.

The Avator didn't impress me. I don't know why; perhaps it was the way David's character had turned out in the end; no man would have acted like he did under any circumstance. Of your shorts, the best was *The Accursed Galaxy*; it was the best in the issue also, with *Son of Old Faithful* a close second.

The Far Way and *Menace from Saturn* were new ideas and were written well enough to pass by me without comment. The others weren't so very good; they weren't written so very well, and the ideas were a little bit out of place—the latter a little, and the former not interesting. The editor's page, I must compliment you on—excellent.

And now for these guys that say, "Phooey on kickers about wire staples, rough edges, etc." I retort, "Phooey on them." You'll have to admit it. "You can't say appearance doesn't count. Illustrations do!" Clay Ferguson pointed that out well in a letter a short time ago. I say if illustrations can't be good in sf. magazines, leave them out entirely. Smooth paper, cut edges, etc., all go to satisfy the majority of readers. So I say again, "Phooey on the critics of critics on wire staples."

One more thing: You editors must think it will ruin your reputation if you publish some slams against you; I notice that there wasn't one brickbat in the last two issues. G'wan, I bet you're scared.—Raymond Hood, Jr., High Ridge, Connecticut.

Tucker Takes It!

Dear Editor:

The mighty Dictator speaks. Quiet please!

First: Mr. Wakefield of Sacramento: You are wrong; The Sterling-Wollheim combo is not a rival. Wollheim is rapidly weakening, and Sterling has already offered to sell out. And we are growing stronger. Watch for the big announcement due soon concerning our 1000 members. If a copy isn't mailed you, send a stamp for one. They will be ready by the time this gets in print.

I get a great kick out of all the boys in Brass Tacks who pass upon my sanity. Do they ever stop to think of themselves? They must be a little touched, too, or they wouldn't read science-fiction. However, I get a great kick out of being nuts, a moron, daffy, etc. It's too bad there aren't more like me in the world. It would be a happier place. Will Mr. Kirshenblit please inform me how the gigantic tussle between himself and that Wollheim person came out? I expect a little something from that remark of his in the July issue.

Ah! Now to Fred Anger: I give him the itch. Now, there's a good chance to sell my anti-itch balm. He is averse to my drooling pen. I don't use a pen. It is generally a scoop shovel and a piece of chalk. However, if he doesn't want to listen to me, let him join the SPWSSTFM so the wire staples will be removed, the mag will fall apart and he can just pick up the story matter, and leave Brass Tacks where it falls. P. S. The headquarters of the Anti-Tuckerites was burned down last week. While holding a meeting, Fred became angry, his ears got red, and set the rafters on fire.

Thanks to Philip McKernan for his noble onslaught. A titled membership and copies of our propaganda will be rushed to you at once to prepare you for the fray.

As to Mr. Wilson of Missouri: I gave myself the dictatorship. Whattya gonna do about it? Wire staples are detours on the path to Utopia. Remove them, replace with gum binding, and

the mag stands itself up. Open at any desired place while you eat your morning mush. And the keepers let me go! I was too smart for them! Well, that's all of this except that it seems that Ackerman got his staples crossed in his letter in the July issue.—Bob (Dictator) Tucker, 210 Grove Street, Bloomington, Illinois.

Thank You!

Dear Editor:

This is my second letter to Astounding Stories. I hope it will not be my last. After seeing my first letter published in Brass Tacks, I could not resist writing a second. I think our magazine is one of the most friendly on the market. All of the readers have a certain respect for their fellow men, and when you send a letter to the editor you receive a courteous reply from him and he writes as if he had known you all his life.

Some of the finest science-fiction stories that I have ever read have appeared in Astounding Stories. I will not say the finest, for I place Vaughan's *Exiles of the Skies* above all others. However, I will say that *Old Faithful* deserves a place high in the ranks of science-fiction; in fact I rate it just below the former. The sequel to *Old Faithful* was as good as the original, if not better. Thanks for two wonderful stories.

And now for the July issue: To me it was an all-star issue, with the exception of one story, *The Avator*, which contained too much science for the ordinary reader. What about you fellow Brass Tackers? If I am wrong I will take my medicine without a whimper. *Liquid Power* was one of the best novelettes you have ever published.

The short stories were all excellent. The one thing that surprised me was that I liked the story by Frank Belknap Long, Jr. In my first letter I stated that I didn't like his stories, but the author surely overdid himself in his story *Exiles of the Stratosphere*. I am glad to see a story by Edmund Hamilton on your pages.

Hoping that Astounding Stories comes out twice a month.—Walter Liebscher, Mount Olive, Illinois.

The Cause!

Dear Editor:

That was a fine editorial of yours in the July issue; it seemed to show perfectly the unique bond which unites all science-fictionists, whether they be reader, author or editor.

I hope you are continuing to give thought to the quarterly plan and the bimonthly idea. If you ever do publish a quarterly, and if it is as good as the monthly magazine, I am sure there will be a mad rush of readers to secure copies. They may even wreck a few news stands, but who cares if it's all in the cause of science-fiction?

As usual, the stories were all good in the July issue. I am glad to see a yarn by Edmund Hamilton and I hope he stays with the magazine. Brown's cover was a thing to be admired. I used to think Wesso was pretty good, but he seems to have been passed in a cloud of dust.—L. P. Wakefield, 2832 Marshall Way, Sacramento, California.

Boom in Sequelization!

Dear Editor:

Sometimes it is very difficult if not impossible to surpass old, tried forms. That aphorism—if you wish to call it so—applies to writing as well as to anything else. But the authors contributing to A. S. seem to have realized this only to a limited degree. Sequels to well received stories have trickled in painfully slow, and the readers have not been as vociferous as they might.

However, devoting some thought to the matter, I have at last come to the conclusion that you, Mr. Editor, must be the chief offender. In your very commendable zeal to urge your writers on to greater heights for the everlasting glory of A. S., you seem to have caused them to interpret your Simon Legree stimulations for new, original, intriguing, tremendous plots, characters, and atmosphere. That is, they have believed that you want no rehashing whatsoever, which is, of course, true; but, I'm sure that you did not mean that sequels were undesirable, for certainly a plausible, well-worked-out sequel is no rehash.

Therefore, in view of these weighty meditations, I charge you herewith, Mr. Editor, to impress upon your authors the desirability of taking an inventory of their past works and writing sequels to the most widely acclaimed and adaptable. In an attempt to do a little impressing on my own hook, allow me to present a few stories which I thought deserving. I have inserted the date also to facilitate a check-up if the Brass Tackers so desire:

The God Box, Von Drey, April, 1934; *Side-wise in Time*, Leinster, June, 1934; *Inflexure*, C. C. Campbell, October, 1934; *Mind Over Matter*, Gallun, January, 1935; *Discus Men of Ekta*, Buchanan and Carr, February, 1935; *When the Sun Dies*, Corbett, March, 1935; *The Mightiest Machine*, J. W. Campbell, Jr., April, 1935; *The Lotus Eaters*, Weinbaum, April, 1935; *Prowler of the Wastelands*, Vincent, April, 1935; *The Orb of Probability*, Schachner, June, 1935; *The Son of Old Faithful*, Gallun, July, 1935; *Exiles of the Stratosphere*, F. B. Long, Jr., July, 1935.

Also, I should like to add that more of Peregoy's *Short Wave Castle* experiments would be very, very acceptable. Just one more thing, Mr. Editor: Don't you think that a handy, blank, coupon printed in each issue for the purpose of facilitating and encouraging the readers' statements of preferences as to sequels, authors, and story types would be a valuable innovation? Here's to a boom in Sequelization!—William N. Anthony, 2633 Foster Avenue, Chicago, Illinois.

Drama!

Dear Editor:

Feeling in the playful mood that I do to-day, methinks I will present my woes to your august self in the form of a drama—a tragedy.

Scene: The editorial office of the great Astounding Stories.

Time: Shortly after the mailing of the July, 1935, issue.

Discovered: Editor browsing through a stack of papers.

Enter: Sir Doc Lowndes, Royal Pill Roller, SPWSSTEM, Knight of the Oblong Table, SFL member (RC) Mo. 630 Astounding Fan No. 1234567890½.

Editor:—Why the tears, Doc, me lad?

Doc:—(Indicating the July issue of Astounding.) This cover. It's terrible—positively terrible. Not the drawing, you understand, but the entire tone of it.

Editor:—I would say it is an excellent cover.

Doc:—It might be for any magazine but Astounding Stories. Brown is an artist but not a stiff artist. There's no color or glamor to it at all—nothing to show to the observer that here is a magazine that is different. Look at that insignia, "Astounding Stories!" There is something to quicken your pulse—the very word, the clear, bold cut of the block letters, the outstandingness of the color combination. But, the cover itself—What is astounding about that? Nothing. What is there to catch the eye to hold the casual onlooker, to make the lover of the bizarre and the fantastic catch his breath and look again? Nothing.

Editor:—The cover is fantastic, isn't it? It is tasteful, quiet, yet compelling. It shows a scene not to be found on the covers of any other magazine. What else could the observer take it for but the cover of a magazine devoted to science-fiction?

Doc:—You have me there. I can't answer all these points. All I can do is say that there is something wrong, something vital missing in Brown's covers. You have the acme of science-fiction in between your covers, but the glamorous atmosphere that should surround a fantastic magazine is missing. I can tell you quite frankly that if I were to choose between your magazine and others on the basis of the cover—and that is an important point, because many new buyers do just that constantly—I would unhesitatingly take the one with the outstanding cover. My friends and I are quite agreed on that point.

Editor:—Brown has been very highly praised by our readers, and I, for one, believe him to be superior in his line. Of course, you are entitled to your opinion, but since the majority of our readers seem to bear me out—

Doc:—All right, I see your point, but I'm not conceding a thing. I want a magazine I can take pride in from the cover to the edges.

Editor:—Is that all you have against us—the cover?

Doc:—That and Brass Tacks.

Editor:—Ah, yes, I know.

Doc:—Of course you do. You've answered me personally twice on that score, and you've answered the question generally in your editorial comments on that solitary page, but I'm not satisfied by any means. I see again an atmosphere that is not what our fans desire—an atmosphere that would betoken editorial indifference to what the readers thought. Yet each issue of *Astounding* is impeccable proof that you were wearing down your finger nails, so to speak, to give us the best and then about twice as good. But your ideas just do not jibe with ours on that score. We want a department which we can share with the editor. Why should Brass Tacks be a perpetual one-way street unless the editor either doesn't give a hoot what the readers think, or is afraid to answer what they bring up? The department as is, is just dreary and without color except for a few letters from readers who can really write—such as Dr. Smith.

Editor:—Well, if I receive enough demands, I'll have to give in, but I'd much rather have things stay as they are. You know I can't print more than one letter in ten, as is.

Doc:—Which is better, I ask you? A Brass Tacks with fifty letters which is soporific and dreary, or a Brass Tacks with fifteen letters each answered by the editor—except perhaps purely technical ones, like those in the Van Kampen war—and connected subtly to the rest by his bit of engaging personality? Give us a break! Ask the readers to write in and let me know which they prefer, and if you aren't convinced, then—as I am convinced you will be—I'll crawl off in some corner and turn up my toes and leave you in peace.

Editor:—After all, are these two things such calamities? The magazine is more than Brass Tacks and cover, you know. And, as much as I might like to, I can't give you my attention indefinitely. Now that you're here, why not get some ideas off your chest? You have some, have you not?

Doc:—Rather. I was rather surprised to see that no one else mentioned this point. Do you realize that in printing Don A. Stuart's *The Escape* you have made a real step forward? *The Escape* is to my mind an excellent example of that perfected form of science-fiction which will be the literature—and I mean classic—of to-morrow. It is human, real, and vivid, yet without ranting or wild fantasy. It has that touch which has appeared here and there since the inception of science-fiction but which has gone unnoticed as a rule. Dr. Keller has it and has been writing in that vein since his first story. He has his reward, too, in being acclaimed by thousands as the greatest of science-fiction authors. I personally know several people who will not waste their time on the contents of science-fiction magazines in general, but will read every story of Keller's that they can find. Why? What has Keller that the others lack?

But Stuart also has this quality and I am

delighted to see that you are encouraging him. *The Escape* is the finest story in the May number and likewise *The Invader* in the June issue, although the tone of the second is not the same, though he is as true to his theme in one as in the other. Stewart is one of the few sf. authors who can see his subject through without resorting to heroics to solve the problem. *Set Your Course by the Stars* was also a fine tale.

Well, by the looks of that stuff on your desk, I'm trespassing. But give us a break with Brass Tacks!

Editor:—I'll see.

Doc:—And I'll see the same villainous type in Brass Tacks month after month while I strain my eyes looking for the editorial comments which won't be there. And I'll weep my eyes out at the Brown cover. (Groans loudly and faints.)

Editor:—Poor fellow, he takes it to heart. (To the office boy who has just entered): Take him to Box 132, Darien, Connecticut. (Exit office boy with Doc over his shoulder.)

Curtain.

Wants Adventure!

Dear Editor:

Now, after reading *Astounding Stories* for over two years, I have finally decided that I have information enough to warrant my writing to Brass Tacks. I often read them and often do not agree with some of the opinions.

I have just finished reading the July issue of the magazine and wish to congratulate you on the best issue I have read so far.

Raymond Gallun's *Son of Old Faithful* was superb. Would it be possible to have another sequel to that, or perhaps a serial? *Liquid Power* was excellent also; it held me breathless and spellbound to the end; let's have a sequel to that. The rest rank lower in this order: *Twelve Eighty-seven*, *The Far Way*, *The Accursed Galaxy*, *The Avator*, *Menace From Saturn*, and *Exiles of the Stratosphere*. *Brain Leeches* was impossible.

A few issues ago we had *The Discus Men of Ekta*. Let's have another sequel to that!

Also let's have more of the happenings of our own solar system or galaxy rather than these incredible stories of traveling into other galaxies such as *Skylark of Valeron* and *The Mightiest Machine*. For anybody who wants to read for pleasure, he doesn't want to stop to figure out scientific data, but to be able to grasp the slightest meaning of the story. I say less scientific data and more adventure.—J. H. Morrell, Jr., 20 Park Street, Brookline, Massachusetts.

More Serials!

Dear Editor:

I am an avid reader of *Astounding Stories*, and believe it my duty as a reader to subscribe to Brass Tacks. I have just finished reading the July issue of *Astounding Stories*, and as usual have read it from cover to cover. Brown's cover design was good. There have been better, but also many worse. The first story, *The Son of Old Faithful*, was excellent, so was *Liquid Power* and *The Avator*, although Campbell in *The Avator* had Dr. Earle give too long an explanation of the creation of life. Creation of life is so near impossible that I think it a waste of space.

Brain Leeches, *The Far Way* and *The Accursed Galaxy* were good short stories. *The Menace from Saturn* could have been better. *Exiles of the Stratosphere* had a good idea, but somehow was not interesting and could not be compared with the other short stories. *Twelve Eighty-seven*, to my way of thinking, was pretty poor. It is not really a science-fiction story.

Taine had better mix in some future dates, some rocket ships, queer inhabitants of other planets, and ray guns if he wants to win my respect as a science-fiction writer.

Dold and Marchioni have already won my respect by their story illustrations and queer idea of machinery.

What I want in Astounding Stories is more serials by the authors of the *Mightiest Machine* and *The Skylark of Valeron*; more stories of robots like in the story *Rea*.

Even with these criticisms I think the stories in the July issue which I named at first more than make up for the others' shortcomings.

As far as uneven edges and pulp paper are concerned, I say that Astounding Stories is good, no matter what paper it is printed on. Now about bimonthly publications, I think it would be excellent if the standard of Astounding Stories could be kept up. Possibly it might result in a nervous breakdown for popular authors.

Me for more short stories and better serials in Astounding Stories.—Irving Silbert, 88 Huntress Street, Quincy, Massachusetts.

Admits a Balance!

Dear Editor:

The July issue was a peach. I can honestly say that *The Son of Old Faithful* pleased me even more than *Old Faithful* itself. Gallun is truly an artist at science-fiction. He is in the class which includes Stanley G. Weinbaum, A. Merritt, Don A. Stuart, John Taine and P. Schuyler Miller. Almost needless to say that the third part of *Twelve Eighty-seven* was great.

I am very much pleased that Edmond Hamilton is back in the pages of Astounding again. And he returns with an interesting little tale, too. David R. Daniels is fast becoming a favorite with me. His latest, *The Far Way* I enjoyed immensely.

Brown's cover shows him at his best. Dold and Marchioni, as usual, turned out nice work. What about Paul? And what about the better-looking lettering for the story titles?

Please, won't you give us advance reviews of the coming stories?

Some of the stories published in Astounding lean more toward the scientific element, others more toward story interest and characterization. I like all the types you use, and hope you will continue the fine balance of stories as in the past.—Jack Darrow, 4224 North Sawyer Avenue, Chicago, Illinois.

Too Many Dynes!

Dear Editor:

What's the first thing I see when the July issue arrives? Yes, you've guessed—Brass Tacks so gummed up with zeros and foot-pounds and kinetic energies that it looks like the kiddies' department in the calculus weekly. Heck, I can enjoy a dish of dynes as well as the next feller, but Van Kampen's dog fight has gone on too long. Three or four months, yes, but say, kill him, will you? I've just taken six matriculation exams, and I've five more next week, so you can guess how I feel when I see an equation. I start biting chairs.

The Accursed Galaxy restores my faith in Hamilton. *The Far Way*—good, with an A-plus illustration. I can't praise *The Son of Old Faithful* enough; that story will be looked back on as a classic in 1940, and how many other 1935 science stories will still be remembered then—stories which we now think are immortal? Perhaps *Colossus*, *Skylark of Valeron*—and if you dare mention *The Irrelevant* I'll throw meteorites at you!

Which reminds me: how about to-day's

classics? Yes—reprints! I don't want reprints in Astounding—waste of good new tales. But I do say that if you can bring out in twenty-five-cent book form reprints from other magazines, you can give similar reprints from either early sf. magazines. Don't shout "publication rights"! If you can't give us some reprints, nobody can. The books would sell—you know they would; advertise Astounding Stories on the back or inside covers and sales would go up all round. Think what a way of gaining new readers by issuing picked reprints in celebration of the first decade of science-fiction 1926-36! Do something!

Why not get some reprints of Gawain Edwards' tales? I read *The Earth Tube* recently—try that to begin with.

Ah! So R. H. Jamison thinks Clark Ashton Smith juvenile! Then it follows that the same applies to C. L. Moore, as both writers deal in "unintelligible words of their own invention"—detailed descriptions of bizarre events. I've always followed Smith's tales, and I'm no pedant; likewise I haven't seen any brickbats shattering *The Bright Illusion*.

M. A. Rothman's mention of heavy water made me remember the recent isolation of heavy oxygen. I'd like to know what properties real heavy water has (an artificial water composed of heavy hydrogen and oxygen). We may have another flood of heavy water stories yet!—S. L. Birchby, 38 Nightingale Avenue, Highams Park, Essex, England.

Appreciation!

Dear Editor:

Two months ago I wrote you a letter in which I strongly expressed my distaste for H. V. Brown. I now wish to apologize, having gazed upon his June cover, which I honestly believe to be the finest I have ever seen, surpassing Paul, Wesso, and Morey easily. I also notice that *Electrolytic Onslaught*, by J. Duthie, was illustrated by Leo M. Morey. Am I right? It is typically his style, and the best he has yet done.

Here's something interesting. When Astounding takes anything up, be it artists or authors, they always improve them 100%. Witness Morey, Marchioni, Brown, Eando, Binder, Weinbaum, and lots more. I should like to say that I think Astounding, with their super line-up, have passed the old and much boosted science-fiction of the 1926-1931 era.

Now for this year's issues. I won't give my favorite stories, because I like nearly all of them, but my three were *Star Ship Invincible*, *Mind of the World* and *Set Your Course by the Stars*. Gratis to Binder! I think your worst story was *Earth's Mausoleum*. Your June issue was a knockout. In the April number, Stanton A. Coblenz's *Triple-Geared* had a remarkable resemblance to *The New Accelerator*, by H. G. Wells.

I think your authors are all great, but there are two or three more: I refer to David H. Keller, Lawrence Manning and Clark Ashton Smith, especially the last named. I'm afraid Don A. Stuart is resting on his laurels. His last two were pure hooey, I mean *The Escape* and *The Invaders*. And while I'm on Stuart, what happened to *Prometheus* that was given to appear in the March issue? I simply chewed grass when it wasn't there! What has happened to it?

I am looking forward to *The Accursed Galaxy*, by Williamson. Let's hope it's at least a ten-part serial.

And now to artists. Dold is perfect as ever; he surpasses any magazine artist I have ever seen. His space ships, machines, figures, space battles get bigger and better. Marchioni has greatly improved, and as I said, Brown is now top-notch, and Morey at last is good. I suppose it's no good asking for Paul, but I do so want him. Don't you think Brown may stagnate

doing nothing but painting, month in, month out?

Three illustrations by Dold for *Mind of the World* knocked me down. Boy, that June issue was a honey! Stories by Bates, Stuart, Schachner, Wandrei, Vincent, Gallun, Duthie, Campbell, Daniels and Taine! Can you beat that? Certainly your rivals can't. I have nearly quit buying them as it is.

Although this is rather a long letter, I hope you will cut out *The Son of Old Faithful* to print it in Brass Tacks, as I wish for correspondents on any subject, preferably stf, from the U. S. A. or any part of the world. If they are keen on drawing, so much the better. I will also be pleased to buy any amount of old science-fiction, all types. Best of luck to Astounding, and so here's to the next time.—Francis L. Ellissen, 6 Cardigan Road, Richmond, Surrey, England.

Challenge!

Dear Editor:

Now that I'm up and about again, I feel that I have been forced to write this letter. The July issue, harboring a letter headed as "The Experimental Friend," is on my mind. The letter is unsigned, and the fellow has given us such preposterous ideas that I about had a relapse. Such things as poking a gun barrel under water and blowing it to pieces have happened—our letter writer has as much intelligence as his friend. But had his friend been completely submerged, he would have felt no more kick than if he and the gun were in plain air. The gun would have blown to pieces, but the kick would have been no more because of the equal pressure of water all around him.

Next the experimenter tells us that rockets will be no good in airless space. Pie on our thoughtful friend! Any time you can disprove a known law of physics with a snap of your fingers, you'll hear about it. Look what poor Van Kampen brought on himself. Newton's third law of motion states, "For every action or force there is an equal and opposite reaction." You fire a gun in a vacuum and it will kick back with equal force. This has been proved in an efficient vacuum, by actual experimentation.

I see where my illustrious friend, Bob Tucker, has the readers nuts, too. I cut my finger on a staple yesterday as I perused good old Astounding Stories.

I must ask for a sequel to Daniels' *The Far Way*. It's his best story to date.

I believe *The Son of Old Faithful* justified our waiting. It was entrancing. Not only that, but Gallun solved a big problem of weight in interplanetary flight.

Liquid Power is a nicely written story on an old theme. If Van Lorne can handle an interplanetary tale, let's have a sequel on that subject.

Taine is writing in his inimitable style. I remember his *Time Stream* vividly, and his present story bids fair to be an equal.

I wish these fellows who want a tiny percentage of science in the story content of Astounding Stories would buy some other magazine. I think they would find what they want, and quit deviling Astounding Stories to death. The more science the better I like them, but everybody can't be pleased, so I'll take what I can.—Thomas R. Daniel, 232 Olive Street, Claremont, California.

Lo! Again!

Dear Editor:

It must be gratifying to have an admirer like Dr. Mooers, who would fain protect you from the brickbats of we self-appointed critics. However, I'm a little surprised that you dared print his letter, when you know that you would be

utterly at a loss without the dumb, but honest, opinions of us readers.

For instance—and I wrote for the sole purpose of getting this off my chest—you were probably surprised at the reception given *Lo!* So was I. For my part, I enjoyed it more than anything published in your magazine to date—orchids to you, Ted Lutwin—with the possible exception of *Rebirth*. It was the most interesting, thought-provoking, and amusing fact article I was ever privileged to read. Phrases like "absolute vacancy enormously occupied" and "astronomical gypsies" are still ringing in my ears. Any one who can't appreciate that article is lacking either in intelligence or sense of humor!

I marvel at the blind inconsistency of readers who, as Fort said, "without a quiver in their credulities," would accept the statement that Mars is inhabited by green-skinned bipeds with prehensile tails, but I grew weak with indignation when Fort said, "It rained frogs."

As I remember, some of these readers were bold enough to express admiration for *Skylark Of Valeron* in the same letter that they denounced *Lo!* In my opinion, *Skylark Of Valeron* was just an uninteresting procession of super-ultra-ultras. I simply can't understand how people that are broadminded enough to enjoy science-fiction stories can at the same time be so narrowminded as to be bored by *Lo*. I am tempted to believe that most of the objections are coming from astronomers who, naturally, don't agree with Fort, or from kids who couldn't follow his trend of thought. Bored! I'll switch to some other subject before I explode.

Here is my list of the best stories you have published in the last year. The list is complete as far as I am concerned, because if I've forgotten any, it proves that they didn't make much impression on me. In order of their ranking, they are: *Rebirth*, *A Matter of Size*, *Old Faithful*, *The Bright Illusion*, *The Man Who Stopped the Dust*, *Alas, All Thinking*, *Twilight*, *Blindness*, *The Lotus Eaters*, *The Irrelevant*, *The Machine*, *Infeare*, *Age*.

Just a few brickbats. Coblenz is evidently sacrificing quality for quantity. I don't like the thing-in-the-pool sort of story.

Don't make your covers too gaudy. Give us at least one humorous story to an issue, such as the Dr. Conklin stories, or those by Wallace West. Give us more stories by McClary, Lester and Binder; and more medical science stories—good ones. If possible, make the covers a little stiffer. However, I don't have any real criticism to make. If your magazine never improves, it will still be the best pulp magazine on the market.

My apologies to Dr. Smith for treating him so rudely. My opinion probably won't count for much anyway, when compared to that mob of followers who swear by him. Why don't you admirers of *Lo!* write in? We might get another book by Fort published in Astounding. Right now, that's the height of my ambition.

Keep up the good work.—J. C. Campbell, Buchanan, Kentucky.

Collective Coöperation!

Dear Editor:

Let me add my hearty, although belated, congratulations to the fine job you have done in making Astounding Stories the outstanding science-fiction magazine in the country. As this is my first letter to any magazine you can see that I must be sincere.

I consider *The Skylark of Valeron* the best story you have printed yet, and you surely have printed some fine stories in your time.

I have seen that some of your readers boast of having a large collection of magazines, but I bet my partner and I can top them all. Between us we have about twelve hundred books and magazines. We have a complete set of all science-fiction magazines published since 1925. In addition, we have many duplicates which we

are willing to sell or trade to any one who wishes them. If any of your readers who wish back numbers of this or any other science-fiction magazine, will write to me I will see if we have them among our duplicates.

If there are any readers interested in short waves I would be pleased to hear from them. Yours in hopes of a bigger and better Astounding Stories.—Irving I. Koch, 562 Hendrix Street, Brooklyn, New York.

Attack!

Dear Editor:

Thanks for getting *The Son of Old Faithful*. It was certainly worth its space.

Brass Tacks is going to town on that *Irrelevant* mix-up. I'm interested in seeing just how it's going to come out, though it's about six feet over my head.

One thing I do understand, however, is that howl from an unsigned reader who wants to revolutionize space travel. This was in the July number. Seems he claims that if a shotgun was fired by his friend in a complete vacuum, there would be no perceptible recoil. I wondered at the time just how he figured the charge of shot with which the gun was loaded managed to leave the gun's muzzle?

He may have realized his mistake by this time, but he has not taken into consideration the fact that the expanding gases will exert an even pressure in all directions—toward the sides of the chamber, backward toward the gun breach, and forward toward the shot itself. Placing the muzzle of the piece in water will have the same effect on one end of the cartridge as the breach has on the reverse end, forcing the gas to expand toward the sides, and splitting the barrel. As for the rockets on a space ship, the explosion of the charge will, of course, liberate a great amount of gas. As in the shotgun, this gas will be able to escape only through the open end of the rocket. But instead of leaping far out into space, as this writer would have it, and returning eventually to the ship by force of gravity, the gas will find itself greatly impeded by its own mass, which cannot escape as fast as it expands. The pressure will, of course, be equal here in all directions as in the shotgun; and though a large amount of this pressure is lost, there still remains sufficient to give the ship considerable push. In case there are doubts as to the practicability of this theory, experiments have actually been conducted to find the result of an explosion in a vacuum. Results show that the gas cannot move fast enough to diffuse and make room for continued expansion, and thus actually gets in its own way.

So much for that. Would advise that you keep up the thought-variant. Those of us who have been reading stf. for so long a time that it takes plenty to please us; always welcome anything that's different to thrill us as much as did the first science-fiction story we ever read.

By the way, I had always held the idea that Astounding was more or less unpolluted by the scientifi-fictionist, Ackerman. Told him to take his awful chewing gum puns elsewhere, and leave Astounding and the SPWSSTFM alone.

When, if I may ask, are you going to subscribe to the code and begin using the new gum magazine bindings?—SPWSSTFM member 33, Secret Service Agent No. 1, 2347 South Lucerne Avenue, Los Angeles, California.

Revival!

Dear Editor:

I can but express my disapproval of the opinions of the gentlemen who expressed in the July Brass Tacks a desire to see the Van Kampen-Kaletsky controversy curtailed. The major minds concerned in this argument are

quite evidently ones of great intelligence, and I, for one, consider it a great privilege to be allowed to be even a silent party, and to weigh the excellent hypothesis advanced by both gentlemen. If there are readers whose cerebra are not well adapted to coherent reasoning, it seems that their natural ego would prevent them from advertising the fact in your columns. The story in question presents a challenge to theoretical physics, and I sincerely hope that you will allow the disagreement to wage until a logical solution is reached.

Despite the fact that I admire Mr. van Kampen's presentation of his idea, I am constrained to disagree with him in one or two particulars. This implies no acceptance of Mr. Kaletsky's criticism, for perhaps, through my profound ignorance of higher mathematics, the said attack seems to be as yet most inadequately demonstrated.

Newton's third law of motion states, I believe, that for every action, or force, there is an equal and opposite reaction. It is therefore absurd to presume that the supposed space ship could generate any power at all, either within, or in excess of the law of conservation of energy merely by virtue of its momentum, as there would be nothing upon which the forces concerned might react.

Now, supposing that he did obtain some way to react upon the distant star, and convert the relative difference in the velocities of the two bodies into applicable energy, it would make very little difference whether the ship were in motion relative to the earth or not. It is the difference in the velocities of the ship and the star which provides the reaction. Even then, the ship would immediately tend to come to rest relative to the point of application of the force, which is the star, and a balance would soon be reached.

The length of time required for the ship to come to rest relative to the star would be determined by its momentum at the time of application as compared with the momentum of the distant body, or for convenience we may consider either body as motionless and the momentum as concentrated in the other. The law of conservation of energy, therefore, would obviously hold good. As I only graduated from high school a month ago and am but fifteen years of age—please spare me the humiliation of expressing delight in your youthful readers—there is quite a probability that my deductions contain a fallacy, in which case I will be most pleased if Mr. van Kampen will do me the honor of further elucidating his point in your columns. If you see fit to print this unworthy effort at all, I shall appreciate your consideration in printing it before this controversy dies down.

With my humblest regrets to both Mr. van Kampen and Mr. Kaletsky, I remain—Alvin Wingfield, Jr., 2300 Roswell Ave., Charlotte, N. C.

Mastication!

Dear Editor:

What is the bright idea of heading my epistle "The Air Fish"? It maketh me to have exceeding anger when some one writes in asking for information and does not give his correct address. Mr. Davis can have the needed information by writing either to myself or to "Dictator" Tucker.

The members of the isopumumstffusa—no capitals—should be taken out and shot at daybreak. Know ye that the SPWSSTFM is combined with the Independent Order for the Prevention of the Use of Hair Tonic in Painting the Covers of the Stf. Publications in the Great Nation of Pumperdink, Patent Applied For.

We want the covers painted with soda pop. Thus printing the stories in type made of weiners on thin slices of bread stuck together with chewing gum, we could make a light lunch of good old Astounding!—R. M. Holland, Jr., 702 Griffith Avenue, Owensboro, Kentucky.

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